

Order Aulostomi

1667

Snout extended, with small mouth at end. Gills pectinate. First four vertebral elongated. Ventral fins before dorsal, abdominal or partly abdominal.

The families of this group are still greater or extreme modifications of the Hemibranchii.

# Analysis of Families

a. Mouth toothed; gill opening wide; body with scales, minute spinules, or naked; lateral line complete; two dorsal fins or soft dorsal only.

b. Ventrals subthoracic, with 4 soft rays; body cylindrical, skin naked; <sup>no barbel;</sup> minute teeth in jaws; vent little postmedian; caudal forked.

## Aulorhynchidae.

c. Ventrals abdominal, with 6 soft rays; body compressed; caudal not forked.



little brownish medially and subterminally.  
 Red Sea, Arabia, Persian Gulf,  
 Delagoa Bay, Madagascar, Mauritius,  
 India, Ceylon, East Indies, Philippines,  
 Indo China, China, Formosa, Japan.  
 In life this fish is generally pink,  
 with 4 or 5 deeper broad transverse  
 bars across body and the fins pale  
 or transparent.

U.S.N.M. Takao, Formosa. Dr.  
 Fred Baker. Length 10 mm.

1 example. A.N.S.P. Delagoa Bay,  
 Portuguese East Africa. ~~Dr.~~ H.W. Bell  
 Marley. Length 84 mm.

1 example. A.N.S.P. Bombay. Bombay  
 Natural History Society. Length 10 mm.

c.<sup>1</sup> Body compressed, scaly; symphyseal barbel present; premaxillaries toothless; vent far postmedian; spinous and long soft dorsal present; caudal rhombic. Aulostomatidae.

c.<sup>2</sup> Body strongly compressed, without scales or only single median dorsal and ventral row only; no barbel; premaxillaries with teeth; vent less postmedian, close to ventrals; soft dorsal



Myxus profugus Mohr

Myxus profugus Mohr, Zool.  
Jahrb. Jena, vol. 54, p. 184,  
fig. 6, 1927 (type locality,  
"Japan und Formosa").

lateral bands.

h. Dorsals and anals with yellow  
longitudinal bands.

l. Dorsals and anals each with 2 yellow  
longitudinal bands. celebensis

l. Dorsal bases with yellow band;  
sometimes yellow band along lower edge  
of belly. flaviventris

l. narrow sulphur yellow band along  
spinous dorsal edge. petersii

only, which short and posterior;  
caudal incised, two median rays  
prolonged filament. Fistulariidae.

a.<sup>2</sup> Mouth toothless; no lateral line;  
two dorsals.

c.<sup>1</sup> Scales small, rough; dorsal  
and ventral cuirass of bony  
plates; gill opening wide;  
lateral line canals on head  
only; ventral small, with 5  
soft rays. Macrorhamphosidae.

c.<sup>2</sup> No scales; trunk encased in  
cuirass of bony plates; gill  
opening moderately wide;  
lateral line canals absent;  
ventral rudimentary; tail  
ventrally deflected, naked,  
moveable.

Centriscidae.



Analysis of ~~the~~ species 6/1/00  
Cabo.

- a. Synagris. Spinous dorsal edge entire, membranes not notched.
- b. Dorsal spines without elongated filaments, (except in luteus).
- c. Body without dark transverse blotches.
- d. Body uniform rosy.
- e. Suborbital edge entire.
- f. Fins uniform rosy.
- g. Dorsal rays 10, anal rays 8. hexodon.
- g.<sup>2</sup> Dorsal rays 9, anal rays 7. worcesteri.
- f. Dorsals with marginal yellow band.
- h. Anal without yellow bands.
- i. Dorsals without basal longitudinal band; suborbital depth  $\frac{1}{2}$  of eye. metopias.
- i.<sup>2</sup> Dorsals with basal yellow longitudinal band; suborbital depth  $\frac{2}{3}$  of eye. isacanthus.
- h.<sup>2</sup> Anal with longitudinal basal row of yellow spots; suborbital depth  $\frac{1}{2}$  eye. nemurus.
- e.<sup>2</sup> Suborbital edge denticulate; depth little over half eye; fins flesh red, fins yellow. rubery.  
Canis name only

Family Aelorhynchidae

Body elongate, nearly cylindrical, with very slender, depressed caudal peduncle. Head elongate, slender. Snout elongate, tube like. Eye moderate. Mouth small, terminal, at end of long tube long as rest of head. Premaxillary forms most of mouth edge, maxillary exposed behind. Teeth minute. Gill membranes slightly connected, free from isthmus. Branchiostegals 4. Vertebral 54, of which 29 caudal, those behind anal greatly compressed and anterior vertebral little enlarged. Oblong naked area before pectorals. Skin naked, with few series of partly concealed



plates. Dorsal with many low, free spines, each depressible in groove. Soft dorsal short, elevated in front. Anal preceded by single spine, similar<sup>to</sup> and opposite soft dorsal. Caudal small, forked. Pectoral rather large. Ventrals partly thoracic, inserted behind pectoral base, very close together, with spine and 4 rays.

Small fishes of the North Pacific, somewhat allied with the sticklebacks or intermediate between the same and the trumpet fishes. Besides the Japanese Aulichthys, another genus, Aulorhynchus, from the coasts of Alaska, Washington, Oregon and California.

Genus Aulichthys Gill

Aulichthys (Brevoort) Gill, Proc.  
Acad. Nat. Sci. Philadelphia,  
p. 234, 1862. (Type, Aulichthys  
japonicus (Brevoort) Gill,  
monotypic.)

Body slender. Head moderate.  
Eye postmedian in head. Mouth  
small. Maxillary small. From  
posterior extension from maxillary  
shallow channel backward on  
top of snout until eye diameter  
before eye. Short groove forward  
from supraorbital rim to end  
of anterior median channel.  
Interorbital rugose. Opercle  
large. Lateral line with row  
of sharply keeled plates, each  
ending in spine. Dorsal with 25  
spines, front lobe of soft fin



reaches bases of last rays.

Pectoral inserted well behind head, lower rays longest.

Ventral inserted below middle of depressed pectoral.

One species. This genus especially characterized by the sharply beveled spiniferous plates in the lateral line.

Aulichthys japonicus Gill

- Aulichthys japonicus Brevoort Gill,  
 (Proc. Acad. Nat. Sci. Philadelphia,  
 p. 234, 1862 (type locality, Japanese coast).  
 — Jordan and Snyder, Unnot.  
Zool. Japon., vol. 3, p. 57, 1901  
 (Yokohama). — Jordan and Starke,  
 (Proc. U. S. Nat. Mus., vol. 26, p. 63,  
 1903 Tokyo, Matsushima, Boshu).  
 — Smith and Tope, Proc. U. S. Nat.  
 Mus., vol. 31, p. 463, 1906 (Matsushima  
 Bay at Shiogama). — Franz,  
 Abhandl. Kon. Bayer. Akad.  
 Wiss., vol. 4, Suppl. Band 1,  
 p. 20, 1910 Sagami Bay;  
 Yokohama; Fukuoka. — Snyder,  
 Proc. U. S. Nat. Mus., vol. 42, p. 408,  
 1912 (Hakodate; Shiogama; Misaki).  
 — Jordan, Tanaka, Snyder, Journ.

3 spines and 7 rays. Caudal deeply forked, upper ray sometimes filamentous. Pectoral rays 15 to 18, pointed. Ventral inserted below or behind pectoral base, with spine and 5 rays, outer sometimes produced.

Shore fishes of moderate size in the Indo-Pacific, largely in the Indian Ocean and Western Pacific. Valued as food. They are distinguished from Dentex chiefly by the large scales on the cheeks never in more than 3 rows. Bleeker's designation<sup>✓</sup> (Arch. Néerland. Sci. Nat. Harlem, vol. 11, 1876, p. 278) of Dentex vulgaris Cuvier = Sparus dentex Linnaeus as that species is not contained in Günther's Synagris. The following is largely tentative so that I suppress Anemura and Euthyopteroma.



College Sci. Tokyo, vol. 33, p. 102,  
1913 (reference). — Schmidt,  
Trans. Pac. Comm. Acad. Sci.  
U. S. S. R., vol. 2, p. 34, 1931 (Nagasaki;  
Fusan).

Aulorhynchus japonicus Steindachner,  
Sitzb. Ber. Akad. Wiss. Wien,  
Math.-naturw. Kl., vol. 23, pt. 1,  
p. 179, 1851 (Yokohama).



Body elliptical, compressed. Head moderate. Mouth terminal, protractile, nearly horizontal, jaws equal. Maxillary mostly exposed, without supplemental bone. Outer row of conic and somewhat enlarged teeth and inner villiform band, at least anteriorly. Canines 3 or 4 pairs, and moderately strong above, when present below weak. Preorbital wide, smooth, naked. Preopercle entire or weakly serrate. Opercular spine weak or absent. Branchiostegals 6. Air bladder notched behind. Pyloric coeca few. Scales moderate, adherent, ciliated. Occiput, opercles and cheeks with cycloid scales, on latter in but 3 series. <sup>dorsal and anal scales.</sup> Lateral line complete, not on caudal, tubes simple. Dorsal with 10 spines, 9 rays and spines feeble, sometimes filamentous. Anal with

Depth  $16\frac{1}{2}$  to  $16\frac{3}{5}$ ; head  $3\frac{4}{5}$  to  $3\frac{9}{10}$ , width  $4\frac{4}{5}$  to  $5\frac{1}{8}$ . Snout  $1\frac{3}{4}$  to  $1\frac{7}{8}$  in head from snout tip; eye  $5\frac{4}{5}$  to  $7\frac{1}{8}$ ,  $3\frac{1}{4}$  to 4 in snout, much greater than interorbital; maxillary subequal with eye; interorbital  $1\frac{1}{3}$  to  $1\frac{2}{5}$  in eye, slightly concave.

Skin smooth. Lateral line 47 or 48 keeled plates, each with small posterior spine.

D. XXI to XXV, 8 or 9, spines all uniformly low, first ray  $2\frac{3}{4}$  to 3 in <sup>total</sup> head; A. I, 9, first ray  $2\frac{4}{5}$  to 3; caudal  $3\frac{1}{5}$  to  $3\frac{1}{4}$ ; pectoral 2 to  $2\frac{1}{3}$ .

Brown, little paler on under surface of head and abdomen. Dark brown band along side of snout, over postorbital and above prepectoral. Iris gray. Fins pale.

Japan.

U. S. N. M., no. 59789. Matsushima  
Bay, Japan. Dr. H. M. Smith.  
Length 88 to 142 mm.



Family Aulostomatidae

1677

Body elongate. Head long.  
Premaxillaries feeble, minute,  
not protractile, toothless.  
Maxillary wide. Mouth small,  
at end of long, compressed,  
tube like snout. Barbel at  
symphysis of lower jaw. Gills  
4, slit behind fourth. Gill rakers  
obsolete. Air bladder large.  
Pyloric coeca 2. First 4 vertebrae  
elongated. Scales small, ctenoid,  
not on head or front part of  
back. Lateral line continuous,  
separate from scales. Spinous  
dorsal present. Soft dorsal and  
anal long, alike, posterior.  
Caudal small, rhombic, middle  
rays longest, not produced in  
filament. Pectoral broad, rounded.



Ventral rounded.

One genus, circumtropical.

Genus Aulostomus Lacépède

Aulostomus Lacépède, Hist. nat. Poiss., vol. 5, p. 356, 1803. (Type Fistularia chinensis Linnaeus, monotypic.)

↑ Aulostoma Duméril, Zool. Analyt., p. 138, 1806. (Type

red. Indre, vol. 4, p. 600, 1806.  
(Type Polyptericthys valentini Bleeker, monotypic.)  
(not Grenow 1763)

Solenostomus Tray, Cat. Fish Grenow, p. 146, 1854. (Type Fistularia chinensis Linnaeus.)

Ventral rounded.

One genus, circumtropical.

Genus Aulostomus Lacépède

Aulostomus Lacépède, Hist. nat.

Poiss., vol. 5, p. 356, 1803. (Type

Fistularia chinensis Linnaeus,

monotypic.)

outer Aulostoma Schlegel, Fauna Japonica,

anine Poiss., pt. 15, p. 320, 1850. (Type

anines Aulostoma sinensis Schlegel = Fistularia

chinensis Linnaeus, monotypic.)

, east Polypterichthys Bleeker, Nat. Tijds.

ned. Indië, vol. 4, p. 608, 1853.

(Type Polypterichthys valentini

Bleeker, monotypic.)

(not Grenow 1763)

Solenostomus Gray, Cat. Fish Grenow,

p. 146, 1854. (Type Fistularia

chinensis Linnaeus.)

5783  
upper jaw with outer  
forward directed, short, conic canine  
lower jaw with 1 or 2 lateral canines  
medially, hooked backwardly, and  
side. intermandibular  
minutely  
→ Aulostoma  
Triss., pt  
Aulostoma  
chinensis  
Polypterus  
Heilbr. 9 m  
Type Po



Body compressed. Head extremely compressed, especially snout. Maxillary triangular, with supplemental bone. Mouth small. Lower jaw prominent, protruding. Teeth in bands in lower jaw and on vomer, pterygoids?, none on palatines. Gill membranes separate, free from isthmus. Pseudobranchiae well developed. Branchiostegals 4. Scales small, strongly ctenoid, none on head. Prepectoral space scaly. Lateral line complete, little arched over pectoral. Dorsal spines 9 to 12, very slender, free, weak. Soft dorsal and anal alike, rather long; rays 23 to 28, with 4 anterior spine-like. Pectoral very short. Ventral of 6 jointed rays. Shore fishes of tropical seas.

Genus Synagris Günther Cat. Fishes Brit. Mus. 324  
no 30

Synagris Günther, Cat. Fishes Brit. Mus.,  
vol. 1, 1859, p. 373. Type Dentex furcosus  
Valenciennes, designated by Jordan,  
Genera of Fishes, pt. 3, 1919, p. 291.

(Not Klein 1775, which is inadmissible.)

Anemura Fowler, Journ. Acad. Nat.  
Sci. Philadelphia, series 2, vol. 12, 1904,  
p. 527. Type Dentex notatus Day,  
orthotypic.

Odontoglyphis Fowler, Journ. Acad. Nat. Sci. Philadel.  
series 2, vol. 12, 1904, p. 527. Type Dentex tolu  
Valenciennes, orthotypic.

Euthyopteroma Fowler, op. cit., series 2,  
vol. 12, 1904, p. 527. Type Dentex blochii  
Bleeker, orthotypic.



Aulostomus chinensis (Linnaeus)

1680

Fistularia chinensis Linnaeus, Syst.  
Nat., ed. 12, pt. 1, p. 515, 1766 (type  
locality, ~~Amboyna~~ "India  
Orientali"). — Bonnaterre, Tabl.  
Ichth., p. 172, pl. 71, fig. 290, 1788  
(East Indies). — Gmelin, Syst.  
Nat. Linn., pt. 1, p. 1387, 1789  
(India). — Bloch, Naturges. Ausl.  
Fische, vol. 8, p. 131, pl. 388, 1794  
(East Indies [not West Indies]).  
— Walbaum, Artedii Pisc., vol. 3,  
~~1794~~ p. 626, 1792 (copied). — Forster,  
Fauna Indica, p. 16, 1795 (reference).  
— Schneider, Syst. Ichth. Bloch,  
p. 114, 1801 (India; not America).  
— Shaw and Hodder, Nat. Miscellany,  
vol. 19, pl. 790, 1807 (Indian Seas).



(Savoye.)

Reunion, Seychelles.

Aulostomus chinensis Lacépède, Hist.  
Nat. Poiss., vol. 5, p. 358, 1803  
(Cavite; China; not Antilles).

— Castelnau, Proc. Zool. Acclimat.  
Soc. Victoria, vol. 2, p. , 1873  
(Knob Island). — Smith and Swain,  
Proc. U. S. Nat. Mus., vol. 5, p. 121, 1882  
(Johnston Island). — Fowler, Proc.  
Acad. Nat. Sci. Philadelphia, p.  
500, 1900 (Oahu). — Waite, Rec.  
Austral. Mus., vol. 3, p. 198, 1900  
(Lord Howe Island). — Jordan and  
Snyder, Annot. Zool. Japon., vol.  
3, p. 59, 1901 (on Bleeker's Japanese  
record). — Waite, Rec. Austral.  
Mus., vol. 5, pt. 3, p. 195, March 11,  
1904 (reference). — Jordan, Tanaka,  
Snyder, Journ. College Sci. Tokyo,  
vol. 33, p. 103, 1913 (reference). —  
Fowler, Proc. Acad. Nat. Sci.

Scales  $4\frac{1}{2}$  in lateral line to caudal base and 3 more on latter; 6 above, 16 below, 10 predorsal forward opposite hind eye edge, 5 rows of small scales on cheeks with broad naked preopercle flange.

D.  $\overline{\text{X}}$ , 11 (10 in description), fourth spine  $2\frac{1}{2}$  in head, last spine  $3\frac{1}{4}$ , fourth ray  $2\frac{1}{4}$ ; A.  $\overline{\text{III}}$ , 10, third spine  $3\frac{7}{8}$ , fourth ray  $3\frac{1}{3}$ ; caudal 1, deeply emarginate, lobes pointed; least depth of caudal peduncle  $2\frac{4}{5}$ ; pectoral  $1\frac{1}{8}$ ; ventral  $1\frac{2}{5}$ .

Greenish, more brownish on back and flanks, with brown marblings, cloudings, some grouped as vertical bands. On body also numerous indistinct longitudinal brown or blackish lines. Fins brown, without spots or bands. Length 185 mm.



1682

Philadelphia, p. 439, 1921 (Honolulu;  
Hawaiian Islands; Oahu; Pacific  
Ocean); Copeia, no. 112, p. 82, November  
20, 1922 (Hawaiian Islands); Bull.  
Bishop Mus., no. 22, p. 7, 1925 (Guam).

— Fowler and Ball, Bull. Bishop  
Mus., no. 26, p. 10, 1925 (French Frigates  
Shoal, Lisiansky, Wake, Laysan Islands).

— Fowler, Mem. Bishop Mus., vol. 10,  
p. 116, 1928 (Honolulu, Tahiti, Maui,  
Waialae, French Frigates Shoal,  
Lisiansky, Wake, Oahu, Laysan,  
Johnston, Samoa, Society, Ebon Islands,  
Pacific Ocean).

cm<sup>129</sup>

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Pentapodus curtus Guichenot

Pentapus curtus Guichenot, Notes  
Ile Reunion, vol. 2, 1862, p. 5 (25).  
Réunion Island.  $\frac{1}{m}$  Playfair, Fishes  
of Zanzibar, 1866, p. 31 (Zanzibar).  $\frac{1}{m}$   
Sauvage, Hist. Nat. Madagascar,  
Paris., 1891, p. 183, pl. 13, figs. 2-2a  
(type).  $\frac{1}{m}$  Regan, Trans. Linn. Soc.  
London, series 2, vol. 12, Zool., May 1908,  
p. 227 (Amirante, Seychelles, 30 to 80  
fathoms).

Depth  $2\frac{1}{2}$ ; head  $3\frac{1}{8}$ . Snout 3 in  
head; eye  $2\frac{7}{8}$ , subequal with snout;  
maxillary reaches  $\frac{2}{3}$  to eye, expansion  
 $\frac{1}{3}$  in eye, length  $3\frac{4}{5}$  in head;  
(teeth 8 above and 9 below shown as  
single row in each jaw, anterior  
little larger); interorbital moderately  
low; preopercle edge entire; suborbital  
depth  $1\frac{1}{2}$  in eye.



Aulostoma chinensis Richardson,  
 Ichth. China Japan, p. 247, 1846  
 China. — Bleeker, Verh. Batavia.  
 Genoot. (Nal. Japan), vol. 25, p. 16, 1853  
 (reference). — Guichenot, Notes Ile  
 Réunion, vol. 2, p. 28, 1862.

Aulostoma chinense ~~Richardson~~  
~~Ichth. China Japan~~  
~~Genoot. (Nal. Japan)~~  
~~Vol. 25, p. 16, 1853~~  
~~(reference)~~  
~~Guichenot~~, Notes Ile  
~~Réunion~~, vol. 2, p. 28, 1862.  
Peters, Archiv naturges., vol. 1, p.  
 258, 1855 (Mozambique). — Günther,  
 Cat. Fish. Brit. Mus., vol. 3, p. 538,  
 1861 (Amboyna; Aneiteum). — Bleeker,  
 Versl. Ak. Wet. Amsterdam, vol. 15,  
 p. 21, 1863 (Hita, Amboyna); Ned.  
 Tijds. Dierk., vol. 2, p. 64, 1865  
 (Harouko). — Playfair, Fishes of  
 Zanzibar, p. 79, 1865. — Bleeker, Verslag.  
 Kon. Akad. Wet. Amsterdam, ser. 2,  
 vol. 2, p. 300, 1868 (Wangai). —



shown in figure to caudal base  
 and 5 more on latter); 6 above,  
 17 below (13 on figure above anal  
 origin), 10 predorsal extending  
 forward opposite hind eye edge,  
 cheeks with 7 narrowly imbricate  
 rows of scales, preopercle flange  
 broadly naked; 4 rows of postocular  
 scales.

D. X, 10, third spine  $3\frac{1}{3}$  in head,  
 last spine  $3\frac{1}{3}$ ; fourth ray  $2\frac{1}{8}$ ; A.  
III, 10, third spine  $3\frac{1}{4}$ , first ray  $2\frac{2}{5}$ ;  
 caudal  $1\frac{1}{10}$ , emarginate, lobes pointed;  
 least depth of caudal peduncle  $2\frac{3}{4}$ ;  
 pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{1}{2}$ .

Grayish silvery, each scale with  
 dark spot forming in scale rows  
 longitudinal series. Length 500 mm.  
 (Savauge.)

Bourbon, Reunion.

Castelnau, Proc. Zool. Acclimat. Soc.  
 Victoria, vol. 2, p. 105, 1873 (Knob  
 Island). — Schmeltz, Cat. Mus. Godeffroy,  
 no. 5, p. 51, 1874 (Vancouver; Tahiti). —  
Peters, Monatsb. Akad. Wiss. Berlin,  
 p. 442, 1876 (Mauritius). — Schmeltz,  
 Cat. Mus. Godeffroy, no. 6, p. 16, 1877  
 (Tahiti). — Blanford, Arch. Néerl.  
 Sci. Nat., vol. 13, p. 37, 1878 New  
 Guinea. — Günther, Journ. Mus.  
 Godeffroy, vol. 15, p. 221, pl. 123, figs.  
 B - C, 1881 Indian Ocean and  
 Archipelago, Line Islands, Hawaiian,  
 Society, Paumotu Islands). —  
Steindachner, Abhandl. Senckenberg.  
 Gesell., vol. 25, p. 438, 1900 Batjan;  
 Denks. Akad. Wiss. Wien, math.-naturw.  
 Kl., vol. 70, p. 502, 1901 (Honolulu; Laysan).  
 — Seale, Occas. Rep. Bishop Mus., vol. 1,  
 no. 5, pp. 18, 21, 1902 (Honolulu). — Chu,



319  
Cuv<sup>129</sup> Pentapodus dux (Valenciennes)  
Pentapodus dux Valenciennes, Compt.  
Rendu Acad. Sci. Paris, vol. 54, 1862, p.  
1203. Bourbon.  $\frac{1}{m}$  Guichenot, Note  
Ile Réunion, vol. 2, 1862, p. 25.  $\frac{1}{m}$   
Sauvage, Hist. Nat. Madagascar, Paris,  
1891, p. 184, pl. 22, figs. 3-3a (type).

Depth  $2\frac{7}{8}$ ; head  $3\frac{1}{5}$ ; snout  $2\frac{1}{4}$  in  
head; eye 3 (description gives  $3\frac{1}{2}$ ),  
 $1\frac{1}{5}$ ? in snout; maxillary reaches  
 $3\frac{1}{4}$ ? to eye, length  $5\frac{1}{4}$  in head;  
maxillary edge not denticulate  
(figure shows only 2 teeth anteriorly  
and very small one above; lower  
jaw shown with 7 equally large  
conic teeth); interorbital low;  
preopercle entire; suborbital depth  
 $\frac{9}{10}$  eye; apparently no opercular  
spine.

Scales 54 in lateral line (45



Biol. Bull. St. John's Univ., No. 1, p. 21, January 1951 reference.

↑ Aulostoma sinensis Schlegel, Fauna Japonica, pt. 15, p. 320, 1850. (type locality, Japan). (no description.)

11, p. 95, 1856 (Banda); vol. 12, p. 230, 1856 (Batu); Act. Soc. Sci. Ind. Néerl., vol. 1, no. 5, p. 7, 1856 (Amboina); vol. 2, no. 7, p. 6, 1857 (Amboina); Nat. Tijds. Ned. Indië, vol. 20, p. 202, 1857-60 (Coxa-Keeling).

Polypterichthys valentyni Bleeker, Nat. Tijds. Ned. Indië, vol. 22, p. 113, 1860 (Buru).

↑ Solenostomus chinensis Gray, Cat. Fish. Gronow, p. 147, 1854 ("Maru Indico").

Biol. Bull. St. John's Univ., No. 1, p.  
21, January 1951 reference.

*Polypterusichthys valentini* Bleeker,  
Nat. Tijds. Ned. Indië, vol. 4, p.  
597, 608, 1853 type locality, Ternate;  
vol. 6, p. 458, 1854 (Amboina); vol.  
11, p. 95, 1856 (Banda); vol. 12, p.  
250, 1856 (Batu); Act. Soc. Sci.  
Ind. Néerl., vol. 1, no. 5, p. 7, 1856  
(Amboina); vol. 2, no. 7, p. 6, 1857  
(Amboina); Nat. Tijds. Ned. Indië,  
vol. 20, p. 202, 1857-60 Cotox-Keeling.

*Polypterusichthys valentini* Bleeker,  
Nat. Tijds. Ned. Indië, vol. 22, p. 113,  
1860 Borneo.

*Solenostomus chinensis* Gray, Cat. Fish  
Gronow, p. 147, 1854 ("Maris Indico").

5261  
1925  
Fowler  
X

Sparus robinsoni (not Gilchrist and Thompson)  
Fowler, Proc. Acad. Nat. Sci. Philadelphia,  
1925, p. 236 (Katal coast).



Psilopentapus, new subgenus<sup>1</sup>

Type  $\frac{1}{m}$  Pentapus dux Valenciennes

Diagnosis.  $\frac{1}{m}$  Known by the restricted

predorsal scales, these extending forward only so far as the eyes.

Canines little developed. Preopercle edge entire and flange naked.

✓  $\psi$ ilos, bald; Pentapus; with reference to the naked forehead.

Rinostomus valentini Jenkins,  
Bull. U. S. Fish Comm., vol. 22, p.  
407, 1902 (1903) (Honolulu). —

Jordan and Starks, (Proc. U. S. Nat.  
Mus., vol. 26, p. 64, 1903 (Honolulu).

— Nylander, Bull. U. S. Fish Comm.,  
vol. 22, p. 523, 1902 (1904) (Honolulu;  
Laysan). —

Jordan and Nylander,  
(Proc. U. S. Nat. Mus., vol. 27, p. 942,  
1904 (Hawaii; Laysan). —

Jordan  
and Seale, Bull. Bur. Fisher., vol.  
25, p. 211, 1905 (1906) (Apia). —

Seale, Decas. Pap. Bishop Mus.,  
vol. 4, no. 1, p. 17, 1906 (Tahiti). —

Weber, Siboga Exped., vol. 57, Fische,  
p. 100, 1913 (Amboin; Banda).

Seale + Starks: Technical

— Weber and Beaufort, Fish. Indo  
Austral. Archip., vol. 4, p. 10, fig. 3,  
1922 (Sula Islands; Banda; Amboin).  
→ apua.

Aulostomus valentini Jenkins,  
 Bull. U. S. Fish Comm., vol. 22, p.  
 457, 1902 (1903) (Honolulu). —  
 Jordan and Starbuck, Proc. U. S. Nat.  
 Mus., vol. 26, p. 64, 1903 (Honolulu).  
 — Snyder, Bull. U. S. Fish Comm.,  
 vol. 22, p. 523, 1902 (1904) (Honolulu;  
 Laysan). — Jordan and Snyder,  
 Proc. U. S. Nat. Mus., vol. 27, p. 942,  
 1904 (Hawaii; Laysan). — Jordan  
 and Seale, Bull. Bur. Fisher., vol.  
 25, p. 211, 1905 (1906) (Apia). —  
 Seale, Lucas. Pap. Bishop Mus.,  
 vol. 4, no. 1, p. 17, 1906 (Tahiti). —  
 Weber, Siboga Exped., vol. 57, Fische,  
 p. 100, 1913 (Amboina; Banda).

Aulostoma valentini Steindachner,  
 Sitzb. Ber. Akad. Wiss. Wien, math.-  
 naturw. Kl., vol. 115, pt. 1, p. 148, 1906  
 (Upolu).

17(3+4)



19-19-22,  
(4 or 5)

2-28-29  
(6-9)

2-20 (4)

16 (3)

17 (3)

2-18 (4)

(3)

3-14 (3-5)

2-21 (4)

6 (3)

7 (4)

15-16

18 (3-6)

7 (3)

8 (3)

20-19-21 (4)

plant

17 (3-4)



Handwritten notes on a separate piece of paper, including the word "Lupinus" and other illegible text.

13078, 13079, 13241 to 13243. Macassar  
market, Celebes, Dutch East Indies.

December 24, 1909. Length 147 to 193 mm.

18264. Tomaha Island. December 11, 1909.  
Length 197 mm.

13028, 13260. Gine Road, Gilloto Island,  
December 1, 1909. Length 183 to 230 mm.

30672 U.S.N.M. New Guinea.  
Australian Museum. Length 108 to 110 mm.  
Both with dark bar across pectoral base.  
As Pentapus bifasciatus Fowler.

Depth  $10\frac{2}{3}$  to 18; head  $2\frac{7}{8}$  to 3,  
width  $5\frac{3}{4}$  to 6. Snout  $1\frac{2}{5}$  to  $1\frac{1}{2}$   
in head from snout tip; eye  $7\frac{3}{5}$  to 13,  
 $5\frac{3}{5}$  to 9 in snout, subequal with  
interorbital; maxillary  $4\frac{1}{3}$  to  $4\frac{2}{3}$  in  
snout, expansion  $1\frac{1}{4}$  to  $1\frac{1}{3}$  in eye,  
length  $5\frac{1}{8}$  to  $7\frac{2}{3}$  in head from snout  
tip; interorbital 7 to  $9\frac{1}{2}$ .

Scales 240 to 250 in lateral  
series, 19 or 20 above and 19 or 20  
below.

D. VIII to XII, 24 to 27, spinous  
fin height  $12\frac{1}{4}$  in total head  
length, ~~first bran~~ front lobe of  
second dorsal  $4\frac{2}{3}$  to  $5\frac{1}{5}$ ; A.  
26 to 28, front lobe  $4\frac{1}{5}$  to  $4\frac{4}{5}$ ;  
caudal  $4\frac{1}{8}$  to  $4\frac{7}{8}$ , convex behind;  
least depth of caudal peduncle  
12 to  $13\frac{1}{2}$ ; pectoral  $5\frac{1}{3}$  to  $5\frac{4}{5}$ ;  
ventral  $5\frac{3}{4}$  to  $6\frac{1}{5}$ .



line simple, large, well exposed,  
 each with small exposed basal scale;  
 Scales with 10 to 12 basal radiating striae; 96 to 100  
 apical denticles with 3 transverse series  
 of basal elements; ~~and~~ circuli fine.

D. VII - I, 9, I, fourth spine 2 to 2  $\frac{1}{10}$   
 in total head length, first ray  $1\frac{2}{3}$   
 to  $1\frac{3}{4}$ ; A. II, 8, I, second spine 3  
 to  $3\frac{1}{5}$ , first ray  $1\frac{7}{8}$  to 2; caudal  
 $1\frac{1}{4}$  to  $1\frac{2}{5}$ , hind edge emarginate; least  
 depth of caudal peduncle  $2\frac{1}{3}$  to  $2\frac{1}{2}$ ;  
 pectoral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ ; ventral  $1\frac{3}{5}$  to  $1\frac{3}{4}$ .

Pale brown generally, under  
 surface whitish. Iris brown. <sup>vent</sup> dorsal  
 with dull brown dusting, other fins  
 whitish.

Red Sea, Natal, East Indies, Philippines,  
 Polynesia.

Pale brown to yellowish or gray. Sometimes with obscure narrow pale to whitish blotches along sides - or as 10 to 12 variable narrow pale cross bars, often only evident between dorsal and anal. Often blackish blotch on maxillary, before eye and at upper and lower caudal edges medially, variably absent.

Zanzibar, Mozambique, Mauritius, Madagascar, Bourbon, Reunion, Seychelles, India, East Indies, Philippines, China, Riu Kiu, Japan, Queensland, New South Wales, Melanesia, Polynesia, Hawaii.



rows of molars posteriorly with third row enlarged; below middle row of molars developed; interorbital  $3\frac{1}{2}$ ; opercle ends in short spine.

Scales 55 in lateral line; 7 above, 11 below; 5 rows on cheek.

D. XI, 13, fourth and fifth spines little over half of head; A. III, 11, second spine stronger and longer than third, long as mouth cleft or  $2\frac{2}{5}$  in head; pectoral reaches anal,  $2\frac{2}{5}$  in body length.

Back with pale and dark longitudinal streaks to level of pectoral and below latter indistinct streak. Dorsal blackish, dotted and marked with median bar and above basal scaly sheath broad whitish band. (Steindachner.)

Mozambique, Mauritius. This little known species seems to differ chiefly in



6515. Balikias Bay, Luzon.

July 17, 1908. Length 493 mm.

7254. Busbus Point, Siasi Island.

September 20, 1909. Length 284 mm.

8642. Biri Channel. June 2, 1909.

Length 438 mm.

8540. Dalaganem Island, eastern Palawan and vicinity. April 8, 1909.  
Length 315 mm.

21025. Little Santa Cruz Island.

May 28, 1908. Length 200 mm.

9212. Maching, Camaguin Island.

August 3, 1909. Length 400 mm.

7378. Port Catmon, Busuanga Island. December 15, 1908. Length 345 mm.

6390, 6391. Port Zamelo, Luzon.

July 13, 1908. Length 414 to 558 mm.

7281, 17176. Port Matalvi, Luzon.

November 23, 1908. Length 267 to 428 mm.

Depth  $2\frac{3}{4}$  to  $2\frac{4}{5}$ ; head  $2\frac{1}{2}$  to  $2\frac{2}{3}$ , width 2 to  $2\frac{1}{10}$ . Snout  $4\frac{1}{4}$  to  $4\frac{1}{2}$  in head from snout tip; eye  $2\frac{4}{5}$  to 3, greater than snout or interorbital; maxillary reaches  $\frac{1}{2}$  to  $\frac{3}{5}$  in eye, expansion  $2\frac{2}{5}$  to  $2\frac{3}{4}$ , length 2 to  $2\frac{1}{8}$  in head; teeth villiform, in bands in jaws, and on vomer, none on palatines; interorbital  $4\frac{1}{3}$  to  $4\frac{2}{3}$ , very slightly convex or nearly level; preopercle ridge entire, edge finely serrated. Gill rakers 7 + 20, finely lanceolate, longer than gill filaments or  $\frac{1}{2}$  of eye.

Scales 23 or 24 in lateral line to caudal base and 3 or 4 more on latter, 2 above, 6 below, 3 or 4 predorsal, 2 rows on cheeks; head naked, except cheeks and opercles. Tubercles in lateral



6134. Puerta Princesa, Palawan. <sup>1690</sup>

April 5, 1909. Length 245 mm.

8988. Rupu Rupu Island. June 22,  
1909. Length 520 mm.

Two examples. A 561. Sulaile  
Island. September 18, 1909. Length 350  
to 358 mm.

A 855. Tulse Island, north of  
Celebes. November 9, 1909. Length 513 mm.

16234. Cape Kait, Libani Island,  
Celebes. December 29, 1909. Length 340 mm.

1080, 1088. Maitara Island,  
Doringa Bay, Gillolo Island. November  
26, 1909. Length 340 to 370 mm.



24101. Great Tobea Island. December  
15, 1909. Length 70 mm.

1691

Family Fistulariidae

Body greatly elongate, depressed or partly cylindrical, very long. Head very long. Both jaws, also usually vomer and palatines, with minute teeth, none on pterygoids. Gill membranes separate, free from isthmus. Gill rakers obsolete. Branchiostegals 5 to 7. Pyloric coeca few. Intestine short. Air bladder large. Vertebrae numerous, first 4 elongate. Skin entirely naked or covered with minute, conic, hooked spinelets, which persist or disappear with age; besides median longitudinal single row of narrow beeled scales may occur on back and ventral surface. Soft dorsal short, posterior,

rays 16 to 18, with 3 anterior extremely short. Anal opposite dorsal, similar, rays 15 to 17, with 2 anterior extremely short. Caudal forked. Pectoral with broad base, preceded by smooth area. Ventrals wide apart, abdominal, far before dorsal, rays 6.

Tropical shore fishes, related to the sticklebacks in structure, but differing in the elongate snout and ventral rays.



Genus Fistularia Linnaeus

Fistularia Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 312, 1758. (Type Fistularia tabaccaria Linnaeus, monotypic.)

Cannorynchus Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1193, 1849 (1850). (Type Fistularia tabaccaria Linnaeus, virtually, as Cannorynchus Cantor proposed to replace Fistularia Linnaeus.)

Cannorynchus

Flagellaria Gray, Cat. Fish Gronow, p. 146, 1854. (Type Flagellaria fistularis Gray, monotypic.)  
= Fistularia tabaccaria Linnaeus,

Body much depressed, wider than deep. Front bones of skull much extended, form long tube, hexangular in cross section, ending in narrow mouth. Membrane uniting bones of tube below very lax, so tube greatly dilatable. Gills 4, slit behind fourth. Pseudobranchiae present. Bony plates on body mostly covered with skin. Lateral line on trunk curved towards median line of back in tube shaped ossifications; further on bending downward and along middle of side; where tubes gradually form narrow long bony shields with more or less prominent keel or spine. Lateral line continued on caudal filament and again enclosed in tubes. Caudal with 2 middle rays produced



can 129

Pentapodus nubilus Cantor

Pentapodus nubilus Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, 1849, p. 1031. Pinang.

Pentapus nubilus Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 382 (compiled).

Bleeker, Verhandl. Kon. Akad. Wetensch. Amsterdam, <sup>no. 3,</sup> vol. 13, 1873, p. 53 (compiled).

Head 3. Eye little posterior of head center, little less than 3 in head; canines of both jaws very small, 4 above, 6 below of which 2 outer largest and slightly arched outward.

Scales 47 in lateral line, very distinct, follows outline of back; number of minute pores on infraorbital, cheek, preopercle edge and lower jaw. Scales very finely ciliated.

D. X, 9; A. III, 8; pectoral reaches anal spine.



in long filament. Pectorals small. Ventrals very small. Vent close to ventrals.

Species few. Fishes of large size and remarkable appearance, especially in the long tube-like snout and the 2 median caudal rays extended as a long filament from the center of the tail behind.

294  
52362 U.S.N.M. Apia, Samoa.  
Bureau of Fisheries. Length 172 to 193 mm.  
3 examples.

65515 U.S.N.M. Manguereva.  
Albatross Collection 1904-05. Length 103 to 228  
mm. 10 examples.

71973 U.S.N.M. Kafa, Olamiva, Riu  
Kiu. Albatross Collection 1906. Length 180  
to 182 mm. 2 examples.

# Analysis of Species

1696

a.<sup>1</sup> Body naked, with out median ~~dorsal~~ row of narrow beeled scutes or scales before and behind dorsal and anal; interorbital <sup>flat</sup> ~~concave~~; 2 median ridges on snout above close together and parallel on front half of snout length; ridges of head weakly crenulate.  
petimba.

a.<sup>2</sup> Body rough with spinelets; with single median row of narrow beeled scales before and behind dorsal and anal; interorbital concave; 2 median ridges on snout above close together and parallel on front half of snout length; ridges on head strongly serrate or crenulate.  
depressa.



Scales 50 to 53 in lateral line to caudal base and 4 more on latter; 7 or 8 above, 16 to 18 below, 20 to 45 predorsal, 4 or 5 rows on cheek. Scales with 8 to 11 basal radiating striae; 30 to 90 apical denticles, rather obtuse; circuli fine.

D. XI or XII, 10, I or 11, I, third to sixth spines and in long slender filaments reaching beyond caudal or equal combined head and body or even entire fish, second ray  $2\frac{1}{5}$  in head; A. III, 8, I, second spine  $2\frac{2}{3}$ , first ray  $2\frac{1}{4}$ ; caudal 1 to  $1\frac{1}{10}$ , emarginate; least depth of caudal peduncle  $2\frac{4}{5}$  to  $2\frac{1}{2}$ ; ventral  $1\frac{1}{10}$  to  $1\frac{1}{3}$ ; pectoral  $2\frac{3}{5}$  in combined head and body to caudal base.

Back pale brownish, below paler to whitish. Fins all pale brownish. Iris whitish. Ventral and anal with

1697

Fistularia petimba Lacépède

Fistularia petimba Lacépède, Hist. Nat. Poiss., vol. 5, pp. 349, 350, 1803 (type locality, New Britain; Reunion; Antilles); vol. 2, pl. 18, fig. 3, 1803.

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 59, 1901 (reference).

— Jordan and Starbuck, Proc. U. S. Nat. Mus., vol. 26, p. 67, 1903 (Wakarusa, Misaki, Hayasaki). — Jenkins, Bull.

U. S. Fish Comm., vol. 22, p. 437, 1902 (1903) (Honolulu; Tahiti). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 523,

1902 (1904) (Honolulu; Hilo; Hanalei Bay, Kauai; Hecker). — Jordan and

Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 116, 1903 (1905) (Honolulu; Hilo; Kailua; Samoa; Tahiti). —

Jordan and Seale, Bull. Bur. Fisher.,



Can<sup>129</sup>

224

Pentapodus aurolineatus (Lacépède)

V. parus aurolineatus Lacépède, Hist. nat. Poiss., vol. 4, 1802, pp. 42, 132. no locality.

(on Commerson.)

Pentapus aurolineatus Valenciennes, Hist. nat. Poiss., vol. 6, 1830, pp. 269, 557, pl. 157.

(on Lacépède) <sup>1</sup>/<sub>2</sub> Günther, Cat. Fishes Brit. Mus., vol. 1, 1857, p. 381 (Louisiades; Mauritius),

p. 507 (note); Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, 1874, p. 33, pl. 25B (Kingmanills,

Hervey, Samoa, Friendly, Society, Tuamotu, Louisiades Islands). <sup>1</sup>/<sub>2</sub> Schmeltz, Cat. Mus.

Godeffroy, no. 5, 1874, p. 33 (Samoa; Tahiti).

<sup>1</sup>/<sub>2</sub> Day, Fishes of India, pt. 1, 1875, p. 93 (Ceylon).

<sup>1</sup>/<sub>3</sub> Peters, Monatsber. Akad. Wiss. Berlin,

1876, p. 437 (Mauritius). <sup>1</sup>/<sub>2</sub> Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 40 (Samoa; Tahiti).

<sup>1</sup>/<sub>2</sub> Günther, Philoz. Trans. Roy. Soc. London, vol. 168, 1879, p. 471

(Rodriguez). <sup>1</sup>/<sub>2</sub> Károli, Termesz. Füzetek,

Budapest, vol. 5, 1881, p. 154 (Singapore).

<sup>1</sup>/<sub>2</sub> Macleay, Proc. Linn. Soc. New-South Wales,



1698

vol. 25, p. 211, 1905 (1906) (Samoa). —  
— Seale, Occas. Pap. Bishop Mus.,  
vol. 4, no. 1, p. , 1906 (Mangareva;  
Fate'; Shortland Island; Raiatea;  
Rarotonga; Nukuhiva; Makatea). —  
— Steindachner, Sitzb. Ber. Akad.  
Wiss. Wien, math.-naturw. Kl., vol.  
115, pt. 1, p. 1419, 1906 (Hawaii). —  
Jordan and Seale, Bull. Bur. Fisher.,  
vol. 26, p. 9, 1906 (1907) (Cavite). —  
Evermann and Seale, Bull. Bur. Fisher.,  
vol. 26, p. 56, 1906 (1907) (San Fabian;  
Bacon). — Fowler, Proc. Acad. Nat. Sci.  
Philadelphia, p. 425, 1907 (Fiji). —  
Jordan and Richardson, Bull. Bur.  
Fisher., vol. 27, p. 245, 1907 (1908)  
(Ceyo; Lubang). — Franz, Abhandl.  
Kon. Bayer. Akad. Wiss., vol. 4,  
Suppl. Band 1, p. 20, 1910 (Tagami Bay).  
— Kendall and Goldsbrough, Mem.

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6700. Sangan Island. September  
21, 1909. Length 240 mm.

2 examples. U.S.N.M. Cebu. Dr.  
Fred Baker. Length 108 to 110 mm.  
Pale median band from lower hind  
eye edge to caudal base medially,  
narrow at first and little wider  
behind. Narrow pale band along  
back parallel and above lateral line,  
rather obscure.

5842 U.S.N.M. Zamboanga. Dr. E.  
A. Mearns. Length 212 mm. to median  
caudal ray tips, 314 mm. to ends of  
upper caudal filaments.

1 example. A.N.S.P. Philippines.  
Commercial Museum of Philadelphia.  
Length 245 mm.



Mus. Comp. Zool., vol. 26, p. 263, 1911  
 (Papeete; Arhno Atoll; Moen; Ruvau;  
 Suva; Makemo; Fakarava). —  
Snyder, Proc. U. S. Nat. Mus., vol.  
 42, p. 408, 1912 (Misaki; Shimizu,  
 p. 494 (Okinawa). — Jordan, Tanaka,  
Snyder, Journ. College Sci. Tokyo,  
 vol. 33, p. 103, 1913 (reference). —  
Weber, Viboga Exped., vol. 57, Fische,  
 p. 101, fig. 32 (young), 1913 (Bima;  
 Siau; Kayou; Obi major; Salomaki;  
 Gesser; Kawa; Saleyer; Limboyna;  
 Kur; Java Sea). — Gilchrist and  
Thompson, Ann. Durban Mus., vol. 1,  
 pt. 4, p. 308, 1917 (reference). — Fowler,  
 Proc. Acad. Nat. Sci. Philadelphia,  
 p. 439, 1921 (Hawaii; Philippines;  
 Copeia, no. 122, p. 82, November 20,  
 1922 (Hawaii). — Fowler and Bean,  
 Proc. U. S. Nat. Mus., vol. , p. 12,



282

10780. Dataganen Island.  
April 8, 1907. Length 190 mm.

4815. Jolo market. February 9, 1908.  
Length 285 mm.

4848 and 4849. Jolo market.  
February 12, 1908. Length 248 to 283 mm.

5170. Jolo market. March 6, 1908.  
Length 336 mm.

17531. Campinigan Island, south  
of Zamboanga. September 11, 1909.  
Length 250 mm.

14689. Maculato Island. June 13,  
1909. Length 220 mm.

8983. Porongpong Island,  
Palumbanes Group. June 10, 1909.  
Length 188 mm.

9455 [1986], 16962 [1983], 16963  
[1985]. Simalue Island. September  
22, 1909. Length 193 to 292 mm.  
[1983] with bright sulphur line from eye to

1922 (Tubao; Hawaii; Philippines).

— Weber and Beaufort, Fishes Indo Austral. Archip., vol. 4, p. 14, fig. 4, 1922 (Pulu Weh; Mas; Borneo; Makassar; Manado; Sula; Ambon; Ceram; Gossier; Obi Major; Waigau; Joutefa Bay, New Guinea).

26, p. 10, 1925 (French Frigates Shoal; Johnston Island). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 79,

p. 267, 1927 (Philippines; Mem.

Bishop Mus., vol. 10, p. 117, 1928

(Honolulu; French Frigates Shoal;

Johnston Island; Hilo; Guam;

Mukuhiva; Rarotonga; Fite;

Mangareva; Rainted; Makatea;

Waikiki; Oahu; Tuamotus; Tahiti;

— McCulloch, Mem. Austral. Mus., vol. 5, pt. 1, p. 83, June 29, 1929 (reference).

↓ — Chu, Biol. Bull. St. John's Univ., No. 1, p. 100, January 1931 (reference).



1722 (Jabuo; Hawaii; Philippines).  
 — Fowler, Proc. Acad. Nat. Sci.

Lamar Philadelphica, p. 205, 1725 (Hawaii);  
 Bull. Bishop Mus., no. 22, p. 7, 1725-  
 (Guam), p. 24 (Honolulu). — Fowler  
 and Bell, Bull. Bishop Mus., no.  
 26, p. 10, 1725 (French Frigates Shoal;  
 Johnston Island). — Fowler, Proc.  
 Acad. Nat. Sci. Philadelphica, vol. 77,  
 p. 267, 1727 (Philippines; Mem.  
 Bishop Mus., vol. 10, p. 117, 1728  
 (Honolulu; French Frigates Shoal;  
 Johnston Island; Hilo; Guam;  
 Nukuniva; Rarotonga; Fiti;  
 Mangareva; Raited; Makatea;  
 Waiikiki; Oahu; Tumotu; Pepee;  
 Kinko; Makemo; Tawau; Fakarua;  
 Nuva; Kauai; Penape; Kingenilla).  
 — Chu, Biol. Bull. St. John's Univ.,  
 no. 1, p. 100, January 1931 (reference).



5521 ~~and~~  
 5522. *Critellus*, *musculus* *house*  
 April 16, 1905. Length ~~4 1/2~~ 4 1/2 mm.  
 1/2 1. *house* - *musculus*. *house*  
 12, 1905. Length 5-10 mm.

Schmelz, Cat. Mus. Godeffroy, no. 9, 1884, p. 29 (type)

width, extends upward from upper hind eye edge, along and above lateral line its whole extent to end close below last dorsal rays. Fins all pale, caudal with each lobe darker or slightly dusky brown. Iris yellowish.

East Indies, Philippines. Known by its two golden longitudinal bands and each caudal lobe ending in a long filament.

17857. Bumbum Island. September 25, 1909. Length 114 mm.

8061. Busin Harbor, Burias Island. April 22, 1908. Length 764 mm.

7824. Caxisigan anchorage. January 3, 1909. Length 245 mm.

18386. Cebu market. April 4, 1908. Length 90 mm.

A 496. Balukbaluk Island. September 12, 1909. Length 347 mm.

— Schmidt, Trans. Pac. Comm. Acad.  
Sci. U. S. S. R., vol. 2, p. 35, 1931  
(Koyasaki; Kagoshima). — Anonymous,  
Illustr. Jap. Aquat. Plants  
Animal., vol. 1, pl. 21, fig. 6, 1931. —  
Fowler, Mem. Bishop Mus., vol. 11, no.  
5, p. 324, 1931 (reference). — Borodin,  
Bull. Vanderbilt Marine Mus., vol. 1,  
art. 3, p. 76, 1932 (Bora Bora). —  
Chevey, Inst. Océan. Indo Chine,  
19<sup>e</sup> Note, p. 18, August 15, 1932  
(Indo China).



III, 7, I, dorsal spine 3 to  $3\frac{1}{8}$ , first ray  $2\frac{1}{3}$  to  $2\frac{3}{4}$ ; least depth of caudal peduncle  $2\frac{1}{2}$  to  $2\frac{3}{5}$ ; pectoral  $1\frac{2}{5}$  to  $1\frac{1}{2}$ ; ventral  $1\frac{1}{10}$  to  $1\frac{1}{5}$ ; caudal  $2\frac{1}{3}$  to  $2\frac{1}{2}$  in rest of body, deeply lunate, each lobe ending in long slender filament, apparently lower (broken) little shorter.

Back drab brown, fading paler on sides and under surface - quite light to whitish. Sulphur yellow band, ill defined though little narrower than orbit, extends from side of snout to eye, then follows back from lower half of eye axial to bases of supero-median caudal rays, crossing and including lateral line at middle of caudal peduncle. Second narrower sulphury yellow band, about half pupil in

1702

Fistularia tabaccaria (not Linnaeus)  
Shaw, Voy. Botany Bay White,  
p. 296, fig. 2,  
— Bloch, Naturges. Russl. Fische,  
vol. 8, p. 130, pl. 387, figs. 2-3,  
1794 ("coll. Lénik at Leipzig"). —  
Lichtenstein, Descript. Animal.  
Forster, p. 155, 1844 (Tropical Pacific).  
— Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 529, 1861 (part).



822

Holacanthus septentrionalis Schlegel.

Holacanthus septentrionalis Schlegel, Faun.

Japanica, dec. 5-6, 1844, p. 82, plate 44.

Nagasaki, Japan. — Richardson, Ichth. China

Jap., 1846, p. 246 (China). — Günther, Cat.

Fish. Brit. Mus., vol. 2, 1860, p. 52 (no locality).

— Steindachner and Döderlein, Denks. Akad.

Wiss. Wien, band 47, abth. 1, 1883, p. 24 (Tokyo).

— Ishikawa and Matsuura, Prelim. Cat. Fish.

Mus. Tokyo, 1897, p. 52. — Jordan and Snyder,

Proc. U. S. Nat. Mus., vol. 23, 1901, p. 756

(Yokohama). — Jordan and Fowler, Proc.

U. S. Nat. Mus., vol. 25, 1902, p. 545 — (Ikune,

Kinsui).

Holacanthus rovin Jordan and Fowler, l.c.,

p. 546, fig. 6. Misaki and Wakamura, Japan.



Fistularia serrata (on Block) Cuvier,  
Règne Animal, vol. 2, p. 349, 1817  
(<sup>pl. 387 "America"</sup> on Block; — Günther, Cat. Fish. Brit.  
Mus., vol. 3, p. 533, 1861 (Madras,  
Bengal, Singapore, Pinang, Amboyna,  
China, East Indies. — Day, Fishes  
of Malabar, p. 152, 1865. — Steindachner,  
Sitzs. Ber. Akad. Wiss. Wien, math.-  
naturw. Kl., vol. 53, pt. 1, p. 460, 1866  
(Port Jackson. — Kner, Reise Novara,  
Fische, p. 238, 1866 (Java; Shanghai.  
— Schmeltz, Cat. Mus. Godeffroy, no. 4,  
p. 21, 1869 (Samoa). — Klunzinger,  
Verh. zool. bot. Gesell. Wien, vol. 21,  
p. 515, 1871 (Red Sea. — Castelnau,  
~~Proc. Zool. Acclimat. Soc. Victoria~~  
~~vol. 3, p. 135, 1872 (reference);~~  
Proc. Zool. Acclimat. Soc. Victoria,  
vol. 1, p. 145, 1872 (reference); vol. 2,  
p. 125, 1873 (Karb Island). — Peters,

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 pt. 2, p. 360, pl. 76, fig. 3, 1876. —  
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 pl. 32, fig. C (Aden, Mauritius, Pinang,  
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Bleeker, Atlas Ichth. Ind. Néerland.,  
 vol. 8, 1876-77, p. 119, pl. (49) 327, fig. 3  
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 Obi major, Banda, Volor, Ceram, Waigiu).  
 $\frac{1}{m}$  Schmeltz, Cat. Mus. Godeffroy, no. 7, 1879, p. 40 (Viti). Pohl, Cat. Mus. Godeffroy, no. 9, 1884, p. 113 (Pooti).  
 $\frac{1}{m}$  Klunzinger, Fische Roth. Meer., 1884,  
 p. 40.  $\frac{1}{m}$  Day, Fauna British India,  
 Fishes, vol. 2, 1887, p. 41.  $\frac{1}{m}$  Jordan and  
Seale, Bull. Bur. Fisher., vol. 25, 1905 (1906),  
 p. 270 (Apia).  $\frac{1}{m}$  Steindachner, Sitzb.  
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 $\frac{1}{m}$  Evermann and Seale, Bull. Bur. Fisher.,  
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— Jenkins, Bull. U. S. Fish Comm.,  
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Fish Comm., vol. 23, pt. 1, p. 116, 1903  
(1905) (Jenkins' material). —  
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vol. 25, p. 211, 1905 (1906) (reference).  
— Gilchrist and Thompson, Ann.



8151, 8959, 8961, 15156. Alibijaban

2711 Island, Ragay Gulf, Luzon. March

<sup>6722</sup>  
<sup>6729</sup>  
6954 6, 1909. Length 177 to 240 mm. 5 examples.

15689, 15690, 17760. Alinango Bay.

(12545  
12550  
13048)

10382 Burias Island. March 5, 1909. Length

21210

16804

26580

21232

24788

24947

29860

38431

38719

168 to 195 mm. 5 examples.

10346. Atulayan Island. June 18,

41304 1909. Length 113 mm.

43387

44118

50134

7731. Baganga Bay. May 13, 1908.

Length 210 mm.

9488. Balalo Bay, Palawan Island.

December 21, 1908. Length 200 mm.

76009

8963. Between Paron Point and Jesus

Point, Gulf of Luzon. June 21, 1909.

89638

89639

Length 218 mm.

8341, 8346, 15628. Buang Bay, Talajit

Island. March 15, 1909. Length 185 to 275 mm.



South African Mus., vol. 6, p. 257,  
 1908-11 (Durban). — Pellegrin,  
 Annuaire Mus. Zool. Reg. Univ.  
 Napoli, new ser., vol. 3, no. 27, p.  
 8, 1912 (San Jacinto, Philippines).  
 — McCulloch and Whitley, Mem.  
 Queensland Mus., vol. 8, pt. 2, p.  
 136, July 7, 1925 (reference). —  
McCulloch, Austral. Mus. Mem., vol. 5,  
 pt. 1, p. 83, June 29, 1929 (reference).

Fistularia serraata Vaillant, Bull.  
 Soc. Philom. Paris, ser. 7, vol. 11, p.  
 55, 1886-87 (Rangiroa, Tuamotus).

or bars. Always a large dusky blotch, variably defined, though usually large at eye at or above end of depressed pectoral. Another smaller, or less conspicuous dark blotch also forms above middle of depressed pectoral on same level as posterior blotch. In larger examples dark bands fade or become obsolete, likewise anterior dark blotch, though larger posterior one persistent at all ages.

Fins with pale ground color. [7257.]

Scales of back with obscure pale spots. Dusky lateral blotch. Fins vermilion.

7078 to 7082, 21981. Port San Pio Quinto, Camiguin Island. November 11, 1908. Length 85 to 282 mm. Dark

Cannorhynchus serratus Bleeker,  
 Ned. Tijds. Dierk., vol. 4, p. 126, 1873  
 (1874) (reference).

Solenostomus serratus Bleeker,  
 Arch. Néerl. Sci. Nat. Harlem, vol.  
 13, p. 37, 1878 (New Guinea).

~~A 1640. (C. K. K. K. K. K.)~~  
~~Length 217 mm.~~



827

Holacanthus conspicillatus Waite.

Holacanthus conspicillatus Waite,

Records Austral. Mus., vol. 3, 1897-1900  
(June 15, 1900), p. 203, plate 35. Lord

Howe Island.

Chaetodontophus conspicillatus Ogilby,

Mem. Queensland Mus., vol. 3, 1915, p.  
114 (Moreton Bay).

Holacanthus (Chaetodontophus) conspicillatus

McCulloch, Mem. Queensland Mus., vol.  
7, pt. 4, 1922, p. 242 (Capricorn Group).

Holacanthus (Chaetodontophus) persimilis.

McCulloch, Records Austral. Mus., vol. 1,  
pt. 3, 1914, p. 221, plate 31, West

Australia. — McCulloch, Biol. Res.

Endeavour, vol. 4, pt. 1, 1916, p. 195,  
plate 56, fig. 2 (Wide Bay, Queensland).

Fistularia immaculata Cuvier,  
 Règne Animal, vol. 2, p. 349, 1817  
 (type locality, Sea of the Indies).  
 — Richardson, Ichth. China Japan,  
 p. 247, 1846 (China Seas). —  
Schlegel, Fauna Japonica, Paris,  
 pt. 15, p. 320, 1850 (seas of Japan).  
 — Jerdon, Madras Journ. Lit. Sci.,  
 p. 140, 1851. — Bleeker, Verh.  
 Batavia. Genoot. (hal. Ich. Japan),  
~~vol. 25, p. 16, 1853 (reference);~~  
~~(hal. Ich. Bengal), vol. 25, p. 52,~~  
~~1853 (reference); (hal. Ich. Japan),~~  
~~vol. 26, p. 5, 1855~~ Nat. Tijds. Ned.  
 Indië, vol. 3, p. (237) 281 (Wahai;  
 Amboina; Murotsu; Miturai),  
 p. 546 (Amboina), p. 740 (Macassar);  
 vol. 4, p. 597, 1853 (Halmaheira);  
 vol. 5, p. 321, 1853 (Amboina);  
 Verh. Batavia. Genoot. (Japan),



Depth  $2\frac{2}{5}$  to  $2\frac{3}{4}$ ; head  $2\frac{3}{5}$  to  $2\frac{3}{4}$ , width  $2\frac{1}{10}$  to  $2\frac{1}{5}$ . Snout 2 to  $2\frac{1}{10}$  in head, upper profile slightly concave anteriorly and posteriorly convex; eye  $3\frac{1}{8}$  to 4,  $1\frac{3}{5}$  to  $1\frac{3}{5}$  in snout, equals interorbital; maxillary reaches opposite hind nostril, length  $2\frac{2}{5}$  to  $2\frac{3}{5}$  in head; teeth as villiform band in front of each jaw with outer enlarged row of conic teeth, of which 4 as canines in front above and below; each side above last 3 and similarly below last 2, as molars with slight median longitudinal depression; interorbital  $3\frac{1}{5}$  to  $3\frac{7}{8}$ , broadly convex; preopercle edge entire. Gill rakers 5 + 5, low short tubercles,  $1\frac{1}{2}$  in gill filaments, which  $\frac{1}{3}$  of eye.

Scales 45 or 46 in lateral line to caudal base and 1 or 2 more on latter;

1709

vol. 25, p. 16, 1853 (reference); (Bengal)  
vol. 25, p. 52, 1853 (reference); hat.  
Tijds. Ned. Indië, vol. 6, p. 51, 1854  
(Sindangole, Halmaheira), p. 90  
(Banda, heira), pp. 458, 459  
(Amboina); vol. 7, p. 228, 1854  
(Manado, Celebes); vol. 9, p. 492,  
1855 (Batjan); vol. 10, p. 361, 1856  
(Ternate); vol. 11, p. 95, 1856 (Banda),  
vol. 12, p. 193, 1856 (Ternate), p. 230  
(Batu), p. 294 (Boelung, Bali);  
Act. Soc. Sci. Ind. Néerl., vol. 1, no.  
3, p. 5, 1856 (Manado); vol. 1, no. 5,  
p. 7, 1856 (Amboina); vol. 2, no. 7,  
p. 6, 1857 (Amboina); hat. Tijds.  
Ned. Indië, vol. 13, p. 372, 1857  
(Sangi), p. 385 (Batjan); Act. Soc.  
Sci. Ind. Néerl., vol. 3, no. 3, p.  
6, 1857-58 (Japan); vol. 3, no. 4,  
p. 3, 1857-58 (Manado); vol. 3,



11 (Oman) ✓  $\frac{1}{m}$  Herre and Montalban,  
Philippine Journ. Sci., vol. 33, no. 4,  
August 1927, p. 411, pl. 9, fig. 2 (Tablas  
Island and Bennett Island).  $\frac{1}{m}$   
Fowler, Mem. Bishop Mus., vol. 10,  
1928, p. 214 (Fate, Fiji?, Apia, Taritari);  
Proc. Acad. Nat. Sci. Philadelphia,  
1929 (1931), p. 607 (Hong Kong), p. 642  
(Apia).

Lethrinus ramak Elera, Cat. Fauna  
Filipinas, vol. 1, 1895, p. 482 (Luzon,  
Manila, Cebu, Masabau). (Error.)

Lethrinus fasciatus Valenciennes, Hist.  
Nat. Poiss., vol. 6, 1830, p. 290. Trinquemale,  
Ceylon.

Lethrinus flavescens Valenciennes, <sup>Hist. Nat. Poiss.</sup> ~~op. cit.~~,  
vol. 6, 1830, p. 299. Tongatabu.

Lethrinus azureus Valenciennes, ~~op. cit.~~,  
vol. 6, 1830, p. 300. Carteret Harbor, New Ireland.

Lethrinus ehrenbergii Valenciennes, ~~op. cit.~~, vol.  
6, 1830, p. 312. Massaua, Red Sea.

no. 4, p. 3, 1857-58 (Mando); vol.  
3, no. 5, p. 2, 1857-58 (Macassar);  
vol. 3, no. 9, p. 2, 1857-58 (Padang,  
Sumatra); ~~Nat.~~ Tijds. Ned. Indië,  
vol. 13, p. 372, 1857 (Sangi), p. 385  
(Batjan); vol. 16, p. 37, 1858  
(Tjilatjap); vol. 17, p. 143, 1848-49  
(Boling, Bali); Act. Soc. Sci.  
Ind. Néerl., vol. 5, no. 9, p. 2,  
1858-59 (Nagasaki); vol. 8  
(Sumatra), p. 11, 1859 (Triaman);  
Nat. Tijds. Ned. Indië, vol. 18, p.  
361, 1859 (Blinju, Banka).

Fistularia serrata var. immaculata  
Kner, Reise Novara, Fische, p. (238)  
239, 1865 (Shanghai).

Cannorhynchus immaculatus  
Cantor, Journ. Asiatic Soc. Bengal,  
vol. 18, pt. 2, p. 1193, 1849 (1850)  
(Sea of Pinang).



Fishes of India, pt. 1, 1875, p. 137.  $\frac{1}{m}$

Bleeker, Atlas Ichth. Ind. Néerland.,  
vol. 8, 1876-77, p. 119 (copied Günther).

$\frac{1}{m}$  Schmeltz, Cat. Mus. Godeffroy, no. 6,  
no. 7, 1879, p. 40 (Massana).  
1877, p. 12 (Massana)  $\frac{1}{m}$  Kossmann,

Zool. Anzeiger, vol. 2, 1879, p. 22 (Red  
Sea).  $\frac{1}{m}$  Klunzinger, Fische Roth. Meer.,

1884, p. 40.  $\frac{1}{m}$  Pöhl, Cat. Mus. Godeffroy, no. 9, 1884, p. 29 (Massana).  
 $\frac{1}{m}$  Meyer, An. Soc. Españ.

Hist. nat. Madrid, vol. 14, 1885, p. 19  
(North Celebes, Cebu, Ternate).  $\frac{1}{m}$

Boulenger, Proc. Zool. Soc. London, 1887,  
p. 658 (Muscat).  $\frac{1}{m}$  Day, Fauna British

India, Fishes, vol. 2, 1889, p. 40.  $\frac{1}{m}$

Jordan and Seale, Bull. Bur. Fisher.,  
vol. 25, 1905 (1906), p. 269 (Upia).  $\frac{1}{m}$

Kendall and Goldsborough, Mem. Mus.  
Comp. Zool., vol. 26, 1911, p. 289 (Taritari,  
Gilbert Islands).  $\frac{1}{m}$  Jugmayer, Abhandl.

Kon. Bayer. Akad. Wiss., math.-

physik. Klasse, vol. 26, band 6, 1913, p.

1711

Fistularia comersonii Rüppell,  
Neue Wirbelth. Fische, p. 142, 1834  
(type locality, Mohila, Red Sea).  
— Peters, Archiv Naturg., vol. ,  
p. 258, 1855 (Inhambane, Mozambique).  
Thiollière, Fauna Woodlark, p.  
202, 1857 (Woodlark Island).

Fistularia aribar (Montrouzier)  
Thiollière, Faune Woodlark, p.  
202, 1857 (name in synonymy).

Fistularia starksi Jordan and Seale,  
Proc. U.S. Nat. Mus., vol. 29, p. 520,  
fig. 3, 1906 (type locality, Hong  
Kong). — Chu, Biol. Bull. St.  
John's Univ., no. 1, p. 99, June 1931  
(reference).



Case 129

Lethrinus ramak (Forsskal)Sciaena ramak Forsskal, Descript. Animal., 1775, p. 52. Arabia.  $\frac{1}{m}$ Bonnaterre, Tabl. Ichth., 1788, p. 124(Red Sea).  $\frac{1}{m}$  Gmelin, Syst. Nat. Linn., vol. 1, 1759, p. 1305 (Arabia).  $\frac{1}{m}$  Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 34, 112 (Arabia).

Hist. Nat. Paris,

Sparus ramak Lacépède, op. cit., vol. 4, 1802, p. 34.Lethrinus ramak Rüppell, Neue Wirbelth. Fische, 1835, pp. 117, <sup>120</sup>pl. 28, fig. 3 (Ogadda, Red Sea). $\frac{1}{m}$  Günther, Cat. Fishes Brit. Mus., vol. 1, 1859, p. 459 (Red Sea; Ceylon).  $\frac{1}{m}$  Playfair, Fishes of Zanzibar, 1866, p. 45. $\frac{1}{m}$  Klunzinger, Verhandl. zool. botan.

Gesell. Wien, vol. 20, 1870, p. 752 (types).

 $\frac{1}{m}$  Günther, Journ. Mus. Godeffroy, vol. 2-3, pts. 5-6, 1874, p. 64, pl. 46 (Samoa,Pelew, Kingamill Island).  $\frac{1}{m}$  Day,

Depth 31 to 33; head  $2\frac{3}{5}$  to  $3\frac{1}{10}$ , width 10 to 11 in head. Snout  $1\frac{1}{3}$  to  $1\frac{2}{5}$  in head from snout tip; eye  $7\frac{3}{5}$  to  $11\frac{3}{4}$ ;  $7\frac{3}{5}$  to  $10\frac{1}{3}$  in snout, greater than interorbital; <sup>socket</sup> maxillary long as orbital,  $6\frac{1}{5}$  to  $8\frac{1}{8}$  in snout; interorbital  $9\frac{2}{3}$  to  $10\frac{1}{2}$ , bony portion  $2\frac{1}{8}$  to  $2\frac{1}{2}$  its entire width.

Skin naked, smooth and without median predorsal row of short keels.

D. 15 to 17, fifth ray 7 in total head length; A. 14 to 16, fifth ray  $7\frac{1}{8}$ ; caudal  $7\frac{3}{4}$ , well forked; caudal peduncle depressed, least depth half its width; pectoral  $8\frac{1}{6}$ ; ventral  $14\frac{7}{8}$ ; caudal filament mostly longer in small examples.



4 examples. Makassar Island,  
Buton Strait. December 16, 1909.  
Length 31 to 34 mm.

23451. Saworra Island, south  
of Patiente Strait. December 2, 1909.  
Length 65 mm.

12479 and 12480, 13832, 13833, 23290,  
23624 to 23626. Powati Harbor,  
Makyan Island, Molucca Passage.  
November 28, 1909. Length 97 to 120 mm.

23307 and 23308, 23410. Gane Road,  
Gillolo Island. December 1, 1909.  
Length 98 to 106 mm.

23537 to 23539. Tidore Island,  
south of Ternate. November 25, 1909.  
Length 110 to 115 mm.

Back deep neutral gray,  
paler below, with lilac tints.  
Fins light brown. Caudal  
filament blackish.

Red Sea, Arabia, Natal, Reunion,  
India, Singapore, East Indies,  
Philippines, Indo China, China,  
Formosa, Riu Kiu, Japan, Queensland,  
Melanesia, Polynesia, Hawaii.



15867 and 23956. Danawan and  
Si Amil Islands, vicinity of  
Darvel Bay, Borneo. September 26, 1909.  
Length 61 to 98 mm.

23319. Tomahu Island, Bouru  
Island. December 11, 1909. Length 77 mm.

14483 to 14485. Tomahu Island.  
December 12, 1909. Length 45 to 106 mm.  
7 examples.

23577 to 23578, 23617 to 23618.  
Yifu Bay, Bouru Island. December  
10, 1909. Length 73 to 107 mm.

23401 and 23402. Dodepo and  
Pasejogo Islands, Gulf of Tomini,  
Celebes. November 16, 1909. Length  
88 to 96 mm.

23715 and 23716. Labuan Blanda  
Island, Buton Strait. December 14,  
1909. Length 49 to 63 mm.

I have been unable to distinguish  
surely any of the series below as  
Fistularia depressa Günther.

Many small examples show a  
degree of velvety or finely  
roughened skin, though in none  
is the median row of beels,  
distinct, so diagnostic of that  
species.



Amia melas (Bleeker)

Apogon melas Bleeker, Journ. Indian  
Ichth., vol. 2, 1848, p. 635. Bima, Sumbawa.  
— Günther, Cat. Fishes Brit. Mus., vol. 1,  
1859, p. 243 (copied). — Weber, Siboga  
Exped., vol. <sup>57<sup>th</sup> de.</sup> 65, 1913, p. 230 (Bianu Island  
and High Key). — Beaufort, Bijdr. Dierk.,  
Amsterdam, 1913, p. 115 (Majalibit Bay,  
Waigiu).

Amia melas Bleeker, Atlas Ichth. Ind.  
Néerl., vol. 7, 1873-76, p. 94 (Batu, Nias,  
Singapore, Celebes, Sumbawa, Ternate,  
Buru, Ceram, Amboina); vol. 8, 1876-77,  
pl. (70) 348, fig. 1.

1715

D. 5637. Amblan Island (N.),  
N. 80° E., 21 miles (lat. 3° 53' 20" S.,  
long. 126° 48' 00" E.), Bouro Island  
(south) and vicinity. December 10,  
1909. Length 145 mm.

One example. Atulayan Bay,  
Luzon. June 17, 1909. Length 157 mm.

Two examples. Bolinao Bay,  
May 10, 1909. Length 150 to 186 mm.

Fourteen examples. Bongao, near  
Anchorage. February 22, 1908. Length  
157 to 175 mm.

One example. Busin Harbor,  
Buruas Islands. April 22, 1905.  
Length 177 mm.

One example. Capunaypugan Point,  
Generale Island. May 6, 1908. Length  
163 mm.



lower half. Chin and snout with greenish yellow shades. Iris dark.

Fins slaty, with round black spot  $\frac{2}{3}$  size of eye on soft dorsal base and similar spot size of pupil on anal. Pectoral dusky straw, pinkish at tip.

23895. Pendek Island, Buton Strait.  
December 15, 1909. Length 99 mm.

<sup>23850,</sup>  
23851 and 23921. Togian Bay,  
Togian Island, Gulf of Tomini, Celebes.  
November 19, 1909. Length 73 to 99 mm.

14341. Great Tobea Island, Buton Strait. December 14, 1909. Length 106 mm.

21056 to 21059. Capunayfugan  
Point, Generale Island. May 9,  
1908. Length 240 to 342 mm.

One example. Capulaan Bay,  
Pagbilao, Chica Island, Marinduque  
Island and vicinity. February 24, 1909.  
Length 160 mm.

22139. D. 5461. Caringo Island (W.),  
N.  $12^{\circ}$  W., 4.9 miles (lat.  $13^{\circ}57'42''$  N.,  
long.  $123^{\circ}06'42''$  E.), Luzon. ~~Aggata~~  
~~Aggata~~ June 14, 1909. Length 305 mm.

18381. Cebu market. April 4, 1908.  
Length 302 mm.

D. 5360. Corregidor Light, ~~Aggata~~ N.  
 $74^{\circ}$  W., 6.9 miles (lat.  $14^{\circ}21'$  N., long.  $120^{\circ}$   
 $41'$  E.), Manila Bay. February 7, 1909.  
Length 150 mm.



at second dorsal base and much smaller one at anal base. Pectoral pale yellowish. Other fins body color.

1 example. Simaluc, Bisibisi Island. September 23, 1909. Length 42 mm.

24004. Sitanaki Reef. September 24, 1909. Length 82 mm.

14212. Taganaka Island, Jolo Sea. January 7, 1909. Length 124 mm.

4 examples. Tataan, Simaluc Island. February 18, 1908. Length 24 to 35 mm.

23293. Tataan. February 19, 1908. Length 83 mm.

23235. Tataan. February 20, 1908. Length 24 mm. [166.] Greenish brown, with underlaid opalescent pink on

1717  
7532, 21251. Cotabato, below mouth  
of Mindanao River, Mindanao.

May 20, 1908. Length 220 to 228 mm.

22165. Davao, Mindanao. May 16,  
1908. Length 240 mm.

Two examples. Iloilo market.  
June 1, 1908. Length 138 to 174 mm.

9266. Inamucan Bay, Mindanao.  
August 8, 1909. Length 858 mm.

One example. Jolo, Jolo Island.  
February 8, 1908. Length 133 mm.

D. 5234. Limasawa Island (S.),  
S.  $70^{\circ}30' E.$ , 18.50 miles (lat.  $10^{\circ} N.$ ,  $124^{\circ}$   
 $46'06'' E.$ ), between Bohol and Leyte.

May 7, 1908. Length 75 mm.

A 489. Lampiran Island, south of  
Zamboanga. September 11, 1909. Length 163 to  
1954 mm. Two examples.



23222 and 23223. Ohol, Mindanao.

August 4, 1909. Length 121 mm.

10652. Polloc, Mindanao. May 22, 1908. Length 103 mm.

23231. Port Ciego, Balabac Island.

January 3, 1909. Length 102 mm.

16536. Port Matalvi, Luzon.

November 22, 1909. Length 102 mm.

14605. Port Palapag. June 3, 1909. Length 106 mm.

21353. Duinalasag Island, Masamat Bay. June 12, 1909. Length 103 mm.

3 examples. Reef opposite Cebu.

April 7, 1908. Length 18 to 65 mm. [511.]

Slaty, lateral line slightly paler.

Black blotch smaller than eye at

21174. Malcochin Harbor, Linacapan Island. December 1908. Length 235 mm.

7723. Manila market. March 20, 1908. Length 370 mm.

Three examples. Mansalay, Mindoro. June 3, 1908. Length 147 to 255 mm.

51 examples. Mansalay. June 4, 1908. Length 133 to 198 mm.

9283. Murcielagos Bay, Mindanao. August 9, 1909. Length 547 mm.

One example. Hogas Point, Panay. February 3, 1908. Length 150 mm.

6620. North West point, Verde Island. July 22, 1908. Length 631 mm.

Five examples. Panabutan Bay, Mindanao. February 5, 1908. Length 130 to 198 mm.



1 example. Cebu market. August 28, 1909.  
Length 100 mm. [1825.]

23166. Cebu market. September 5, 1909.  
Length 61 mm.

87 and 4070. Endeavor Strait, Palawan.  
December 23, 1908. Length 80 to 95 mm.

6958. Iloilo market. May 31, 1908.  
Length 110 mm.

23703 and 23704. Zolo. March 6-7, 1908.  
Length 108 to 114 mm. [431, 432.]

23247. Mantacao Island, west coast of  
Bohol. April 8, 1908. Length 110 mm.

11229. Mantaguin Bay, Palawan.  
April 2, 1909. Length 106 mm.

19869. Habatas Point, Samar. July 24,  
1909. Length 103 mm.

22313. Pandanon Island. <sup>1719</sup>  
March 24, 1909. Length 358 mm.

Four examples. Philippines.  
Length 338 to 385 mm.

One example. Port Binanga, Luzon.  
January 8, 1908. Length 140 mm.

Five examples. Port Dupon, Leyte.  
May 6, 1908. Length 128 to 193 mm.

Two examples. Port Dupon. March 17,  
1909. Length 163 to 180 mm.

20497. Port Galera, Mindoro. June 9,  
1908. Length 185 mm.

Two examples. Port Zamelo, Luzon.  
July 13, 1908. Length 163 to 190 mm.

19909. Port Matalvi, Luzon. November  
23, 1908. Length 185 to 285 mm. 3 examples.



though its border rather dark.  
Pectoral brown, blackish basally.  
Ventral, ventral black, innermost  
or shorter rays often paler.

Reported only from the East Indies,  
and our specimens all from the  
Philippines. It is quite variable  
in color with preservation, possibly  
the greatly contrasted specimens  
accentuated by preservation. Often  
some specimens show pale blotches  
on the vertical fins.

1720

6565, 20046, 20047. Port San  
Vicente, Luzon. November 18, 1908.  
Length 153 to 236 mm.

Five examples. Sacol Island.  
September 8, 1907. Length 135 to 155 mm.

3182 to 3186. D. 5442. San Fernando  
Point Light, N. 39° E., 8.4 miles (lat.  
16° 30' 36" N., long. 120° 11' 06" E.),  
Luzon. May 11, 1907. Length 230 to 285  
mm.

20238 to 20241. San Miguel Harbor,  
Ticao Island. April 24, 1908. Length  
143 to 280 mm. Nine examples.

D. 5573. Simalue Island (N.), S. 86° E.,  
0.4 mile (lat. 5° 28' 30" N., long. 120° 13' 00"  
E.), north of Tawi Tawi. September 22, 1907.  
Length 140 mm.



436

Lateral line usually paler brown,  
or bounded each side with obscure  
<sup>deeper</sup> brownish band diffusely. Belly  
slightly paler than back, with brassy  
tinge, though more or less sooty.

Iris more or less yellowish, sometimes  
bright straw yellow, again dusky.  
Usually some silvery, brassy or  
purplish tints on opercle. Head without  
any very sharply defined markings;  
usually diffuse dusky to blackish  
line obliquely from lower eye edge  
across cheek to preopercle angle.

Vertical fins all more or less dusky  
to blackish, variably pale basally  
on soft dorsal and anal, each of  
which may have black basal ocellus

D. 5151. Sirin Island (C.), N.  
 $58^{\circ}\text{E.}$ , 19.3 miles (lat.  $5^{\circ}24'40''\text{N.}$ ,  
 long.  $120^{\circ}27'15''\text{E.}$ ), Sulu  
 Archipelago, Tawi Tawi Group.  
 February 18, 1908. Length 133 mm.

~~1906 (1907), 7.72 (Balkan).~~

~~Frake, Bull. Bur. Fisher., vol. 26,~~

~~Amia marmorata (Lacépède)~~



Genus Rhabdamia Weber

Rhabdamia Weber, Notes Leyden Mus., vol. 31, 1909, p. 165. Type Rhabdamia clupeiformis Weber, designated as orthotypic by Jordan, Genera of Fishes, pt. 4, 1920, p. 534.

Body rather elongate, with long caudal peduncle. Fine bands of teeth in jaws, though larger below; also fine teeth on vomer and palatines. Preopercle edge and ridge entire. Lower gill rakers 22, fine, slender, long. Scales moderately large, cycloid, 22 or 23 in lateral line to caudal base. Opercle with rather small scales. Lateral line prominent, complete. Dorsal fins separated, spinous fin with 6 spines and soft fin

8378 to 8385, 21237. Surigao;  
Mindanao. May 8, 1905. Length 130  
to 368 mm.

3956. D. 5148. Siwon Island (N.),  
S. 80° W., 3.80 miles (lat. 5° 35' 40" N.,  
long. 120° 47' 30" E.), Sulu Archipelago,  
vicinity Liase. February 16, 1908.  
Length 188 mm.

One example. Tataan Passage.  
February 20, 1908. Length 150 mm.

D. 5561. Teomabal Island (NW.),  
S. 36° W., 0.2 mile (lat. 5° 50' 45" N.,  
long. 121° 01' 15" E.), Jolo Island  
and vicinity. September 19, 1909.  
Length 150 mm.



and interorbital naked; Tubes  
in lateral line large, well exposed,  
~~simple~~ <sup>scales with</sup> 15 to 17 basal radiating  
striae; apical denticles 85 to 166,  
with 1 or 2 transverse series of basal  
elements; circuli fine and irregularly  
waved apically.

D. VII - I, 9, I, third spine  $1\frac{3}{4}$  to  $1\frac{7}{8}$   
in total head length, first branched  
ray  $1\frac{1}{5}$  to  $1\frac{1}{4}$ ; A. II, 8, I, second spine  
 $1\frac{7}{8}$  to  $2\frac{1}{5}$ , first branched ray  $1\frac{1}{4}$  to  $1\frac{1}{2}$ ;  
caudal  $1\frac{1}{10}$  to  $1\frac{1}{4}$ , slightly emarginate  
behind with upper lobe usually little  
longer; least depth of caudal peduncle  
2 to  $2\frac{1}{5}$ ; pectoral  $1\frac{1}{2}$  to  $1\frac{3}{5}$ ; ventral  
 $1\frac{2}{3}$  to  $1\frac{1}{2}$ .

Deep sooty brownish generally.

Island,  
20869. Tumindao, Anchorage.

February 26, 1908. Length 130 to 160 mm. Three examples.

One example. Varadero Bay, Luzon. July 23, 1908. Length 163 mm.

One example. Varadero ~~Bay~~ Harbor, Luzon. July 22, 1908. Length 145 mm.

Two examples. Limbe Strait, Celebes. November 9, 1909. Length 150 to 153 mm.

Three examples. Tifu Bay, Bouru Island. December 10, 1909. Length 180 to 185 mm.



434

Depth  $2\frac{1}{3}$  to  $2\frac{2}{5}$ ; head  $2\frac{1}{3}$  to  $2\frac{2}{3}$ ,  
width  $2\frac{1}{8}$  to  $2\frac{1}{3}$ . Snout  $3\frac{3}{4}$  to 4 in  
head from snout tip; eye  $2\frac{7}{8}$  to  $3\frac{2}{5}$ ,  
greater than eye to equal with age, likewise  
interorbital; maxillary reaches opposite  
eye center, expansion  $1\frac{4}{5}$  to  $2\frac{1}{2}$  in eye,  
bands of villiform teeth in jaws, on vomer and palatines;  
length  $2\frac{1}{5}$  to  $2\frac{1}{4}$  in head; interorbital  
 $3\frac{2}{5}$  to 4, nearly level; preopercle  
ridge entire, edge finely denticulate.  
Gill rakers 6 + 14, of which 3 or 4  
uppermost and lowermost rudimentary,  
lanceolate,  $2\frac{1}{3}$  in eye.

Scales 23 or 24 in lateral line  
to caudal base and 3 or 4 more on  
latter, 2 above, 5 or 6 below, 2  
predorsal; 1 or 2 rows on cheeks;  
muzzle, including maxillary, preorbital

A. N. S. P., one example. Natal  
Coast, 1922. H. W. Bell Marley.  
Length 434 mm. to caudal tip,  
filament 100 mm. longer.



of preopercle. Iris color of adjacent region of head. Breast somewhat dusky, throat and tip of chin quite dark. Black bar about wide as eye across caudal peduncle at caudal base. First dorsal like color of back, membranes with yellowish wash, almost cadmium on first 3. Second dorsal rays pink, membranes with lemon wash. Caudal pink, rays lemon with greenish shades. Anal like caudal, colors more pronounced, tip of second spinous membrane scarlet and pale bar across base resting on black line. Pectoral pink. Ventral orange red, dusky along front.

1725

Fistularia depressa Günther

Fistularia depressa Günther, Rep.  
Voy. Challenger, vol. 1, pt. 6, p. 69,  
pl. 32, fig. D, 1880 (type locality,  
Natal; Zanzibar; Amboyna; China;  
New Guinea; New South Wales; Fiji;  
California; Journ. Mus. Godeffroy,  
vol. 15, p. 221, 1881 (New Guinea; New  
South Wales; Fiji; Samoa; Pinapé;  
California). — Steindachner, Denks.  
Akad. Wiss. Wien, math.-naturw. Kl.,  
vol. 49, pt. 1, p. 267, 1885 (Tokyo;  
Yokohama). — Waite, Prelim. Rep.  
Thetis, p. 61, 1898 (Lord Howe Island).  
— Seale, Occas. Pap. Bishop Mus.,  
vol. 1, no. 3, p. 64, 1900 (1901) (Guam).  
— Jordan and Snyder, Annot. Zool.  
Japon., vol. 3, p. 59, 1901 (reference).  
— Seale, Occas. Pap. Bishop Mus.,



19587. Vimalue Island, north of  
Tawi Tawi, September 22, 1907. Length  
119 mm.

4645, 4646, 20713 to 20716. Tambul  
xigambul, Tongil Island. September 14, 1907.  
Length 103 to 149 mm.

6512. Tara Island. December 14, 1908.  
Length 175 mm.

18957. Tiliq, Lulung. July 14, 1908.  
Length 181 mm.

14138. Tifu Bay, Boro Island, Dutch <sup>East Indies</sup>.  
December 10, 1907. Length 114 mm.

A1257. Uhai, Boro Island. December 9,  
1907. Length 240 mm.

21195. Gomomo Island. December 3, 1907.  
Length 84 mm.

20838. Tomahu Island. December 11, 1907.  
Length 74 mm.

14492, 14493, 21479, 21480. Tomahu Island.  
December 12, 1907. Length 77 to 79 mm.

vol. 1, no. 5, pp. 15, 19, 1902 (Hilo;  
Honolulu). — Waite, Rec. Austral.  
Mus., vol. 5, p. 3, 1903 (Kauai,  
Pleasant Island, Marshalls). —  
Jordan and Starks, Proc. U. S. Nat.  
Mus., vol. 26, p. 66, 1903 (Wakanoura;  
Panama; La Paz, Mexico; Hawaii;  
Misaki; Matsushima). — Waite,  
Rec. Austral. Mus., vol. 5, pt. 3,  
p. 195, March 11, 1904 (reference). —  
Smith and Pope, Proc. U. S. Nat.  
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— Franz, Abhandl. Kon. Bayer. Akad.  
Wiss., vol. 4, Suppl. Band 1, p. 20,  
1910 (Yokohama; Atsushi; Aburatsubo;  
Misaki). — Weber, Siboga Exped.,  
vol. 57, Fische, p. 101, 1913 (Macassar,  
Menado, Kawa, Saleyer). — Beaufort,  
Bijd. Dierk. Amsterdam, vol. 19,  
p. 101, 1913 (Saonek, Waigiu). —



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4625 to 4627. Grande Island reef,  
Suber Bay. January 20, 1908. Length 150 to  
173 mm.

9601 and 9602. Hermano Mayor Island.  
May 9, 1907. Length 196 to 200 mm.

17168 and 17169. Malapascua Island,  
Port Mutalvi. November 23, 1908. Length 118  
to 144 mm.

4754. Maricubon Island, Luzon.  
January 20, 1908. Length 235 mm.

3 examples. Philippines. Length 225 to 238  
mm. Largest with blotches of dusky brown.

6393, 9027, 9177, 7179. Port Juncalo, Luzon.  
July 12, 1908. July 13, 1908. Length 110 to 232 mm.

7025 to 7030, 7077, 7100, 12659. Port  
San Pio Quinto, Camiguin Island. November  
10, 1908. Length 130 to 264 mm.

13895 to 13897, 16176, 16177. Suber Island.  
November 8, 1908. Length 110 to 190 mm.

— McCulloch, Mem. Austral. Mus.,  
vol. 5, <sup>pt. 1,</sup> p. 83, June 29, 1929 (reference).



p. 143, fig. 4 (Keelung, East China Sea).  
~~*Pygocentrus*~~ *chauris* van Bened., Fishes marine  
Survey South Africa, Special Rep. 1, 1923,  
 p. 19, pl. 5.

*Argyrops* *bleekeri* Ashima, Jap. Journ.  
Zool., Trans. Abstracts, vol. 1, no. 5,  
 March 31, 1927, p. 141 (Tokyo, Japan).

*Chrysophrys* *rubroptera* Tirant, Service  
Océanogr. Pêch. Indo Chine, 6<sup>e</sup> note,  
 1927, p. (9) 14 (16 f). Hue River, Annam.

Depth  $1\frac{3}{4}$  to  $1\frac{7}{8}$ ; head  $2\frac{4}{5}$  to 3, with  
 2. Snout  $1\frac{2}{3}$  to  $2\frac{2}{5}$  in head; eye 3 to  
 $3\frac{2}{5}$ ,  $1\frac{2}{5}$  in snout, subequal with  
 interorbital; maxillary reaches eye,  
 expansion 3 in eye, length  $2\frac{1}{2}$  to 3 in  
 head; teeth biserial, front ones conic,  
 posterior molars; interorbital  $3\frac{1}{8}$  to  
 $3\frac{4}{5}$ , broadly convex. Gill rakers 7+10,  
 short, lanceolate,  $\frac{1}{3}$  of gill filaments  
 which  $1\frac{1}{2}$  in eye.

Chu, Biol. Bull. St. John's Univ.,  
no. 1, p. 99, January 1931 (reference).

Fistularia serrata not Cuvier Jordan

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vol. 21, p. 515, 1871 (Red Sea). —

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p. 74, 1877 (Hawaii). —

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(Bacon). — Jordan and Richardson,  
Bull. Bur. Fisher., vol. ~~26~~, p. ~~57~~

~~26~~ 27, p. 245, 1907 (1908)

(Manilla). — Snyder, Proc. U. S.  
Nat. Mus., vol. 42, p. 408, 1912

(Shimizu), p. 494 (Okinawa). —

Jordan, Tanaka, Snyder, Journ. College  
Sci. Tokyo, vol. 33, p. 103, 1913

(reference). — Fowler and Bean,



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No. 1, p. 99, January 1931 (reference).

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and Evermann, Bull. Bur. Fisher.,  
vol. 23, pt. 1, p. 116, 1903 (1905) (Honolulu).  
— Jordan and Seale, Bull. Bur. Fisher.,  
vol. 26, p. 9, 1906 (1907) (Cavite). —  
Evermann and Seale, Bull. Bur.  
Fisher., vol. 26, p. 57, 1906 (1907)  
(Bacon). — Jordan and Richardson,  
Bull. Bur. Fisher., vol. ~~26, p. 57~~  
~~27, p. 245~~ 27, p. 245, 1907 (1908)  
(Manilla). — Snyder, Proc. U.S.  
Nat. Mus., vol. 42, p. 408, 1912  
(Shimizu), p. 494 (Okinawa). —  
Jordan, Tanaka, Snyder, Journ. College  
Sci. Tokyo, vol. 33, p. 103, 1913  
(reference). — Fowler and Bean,





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Alentez lycogenus Bennett, Proc. Zool. Soc.  
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1922 (Takao, Formosa). —

Anonymous, Illustrat. Jap. Aquat.  
Animal. Plants, vol. 1, pl. 21, fig. 5,  
1931.

Fistularia villosa Klunzinger,  
Verh. zool. bot. Gesell. Wien, vol.  
21, p. 516, 1871 (type locality, Red  
Sea). — Duncker, Mon. Ichth. Ind. Austral.

— Weber and Beaufort, Fishes Indo Austral. Archip.,  
vol. 4, p. 12, fig. 5 (scutes), 1922 (Hias; Sumatra; Borneo;  
Java Sea; Madag. Sumbawa; Timor; Salayer; Siau; Kajoa;  
Lambau; Ceram; Dumar; Kur; Banda; Aru).

Islands; south coast Linden Harbor,  
Stettin and Rein Bays, New-Pommerania;  
Friedrich Wilhelm and Dörperspitz,  
New Guinea). — Fowler, Proc. Acad.

Nat. Sci. Philadelphia, vol. 77, p. 207,  
1925 (off Natal); Mem. Bishop Mus.,  
vol. 10, p. 118, 1928 (compiled).

— Barnard, Ann. South Afric. Mus., vol. 21, pt. 1, p.  
273, pl. 11, fig. 1, June 1925 (Mossel Bay; Natal).



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Islands; south coast Linden Harbor,  
Stettin and Rein Bays, New-Pommerania;  
Friedrich Wilhelm and Dörperspitz,  
New Guinea). — Fowler, Proc. Acad.

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273, pl. 11, fig. 1, June 1925 (Mossel Bay; Natal).

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3-4, November 5, 1917, p. 451 (Ceylon, China, Queensland).



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p. 530. Alleyrin, Bull. Mus. Hist. Nat.  
Paris, vol. 12, 1912, p. 206 (Port Vaudrich, New  
Hebrides). Fowler, Bull. Bishop Mus.,  
no. 22, 1925, p. 10 (Guam); no. 38, 1927, p. 15  
(Christmas Island). Fowler and Bean,  
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Island, Sumatra). Fowler,  
Mem. Bishop  
Mus., vol. 10, 1926, p. 17 (Marcus, Mukuhiwa,  
Tubuai, Mangareva, Guam, New Guinea, Apia).  
Gnathodentex aurolineatus Seale, Occas. Papers  
Bishop Mus., vol. 4, no. 1, 1906, p. 45 (Tubuai,  
Mangareva). Jordan and Seale, Bull. Bur.  
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and Goldborough, Mem. Mus. Comp.  
Zool., vol. 35, 1912, p. 117 (Mangareva).  
Pentapodus aurolineatus Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, 1927 (1930), p. 642  
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Fistularia guntheri (Döderlein)  
Steindachner and Döderlein, Denks.  
Akad. Wiss. Wien, math.-naturw.  
Kl., vol. 49, pt. 1, p. 267, 1885 (type  
locality, Japan) (name in synonymy).

~~not in 1885~~



Heterodon zonatus Bleeker, natur.

Genees. Arch. Nederl. Indië (Topogr.  
Batav.), vol. 2, 1845, p. 523. Batavia.  
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Heteroglyphodon bifasciatus Bleeker,

Verhandel. Batavia. Genootsch. (Kien.),  
vol. 23, 1850, p. 30. Sumbawa.  $\frac{1}{2}$

Günther, Cat. Fishes Brit. Mus., vol. 1,

1859, p. 364 (copied).  $\frac{1}{2}$  Schmeltz, Cat.

Mus. Godeffroy, no. 4, 1867, p. 14 (Pelew

Islands).  $\frac{1}{2}$  Károli, Temesz. Füzetek,

Budapest, vol. 5, 1881, p. 154 (Singapore).

$\frac{1}{2}$  Meyer, Un. Ver. Españ. Hist. Nat. Madrid,

vol. 14, 1885, p. 15 (North Celebes; Ternate;

→ Koro, Mysore).

Pontapus bifasciatus ~~Bleeker, Atlas Ichth.~~

~~Amboina, 1865, p. 65 (1865).~~

Bleeker, Atlas Ichth. Ind. Néerland., vol.

7, 1873-76, pl. (16) 274, fig. 5.

Depth 1 to  $1\frac{1}{4}$  in orbit;  $11\frac{1}{8}$  to  $15\frac{1}{3}$  in head; head  $2\frac{1}{2}$  to  $2\frac{3}{4}$  to caudal base, width  $8\frac{3}{4}$  to  $12\frac{2}{5}$ . Snout  $1\frac{1}{3}$  in head from snout tip; eye  $12\frac{1}{3}$  to  $13\frac{1}{3}$ ,  $9\frac{1}{2}$  to 10 in snout, greater than interorbital; maxillary slightly longer than orbital socket,  $7\frac{1}{5}$  to  $8\frac{1}{2}$  in snout; bony interorbital 2 to  $2\frac{1}{8}$  in eye. Gill rakers not developed or as few minute papillae.

Skin smooth to rough velvety. Median vertebral row of narrow keels to dorsal 36 and 20 between dorsal and caudal. Lateral line distinct, with rough keel whole length showing 27 spines from opposite dorsal origin to caudal base.

D. 15, fifth ray  $5\frac{1}{5}$  to  $6\frac{3}{4}$  in



4643 and 20719. Tambul, Vigambul,  
Inquil Island, south of Zamboanga.  
September 14, 1909. Length 107 to 111 mm.

18909. Tubnalutan Island, east  
of Zamboanga. September 9, 1909. Length  
89 mm.

8029. Tuminiao Island, Sulu  
Archipelago, Tawi Tawi Group.  
February 26, 1908. Length 117 mm. [330].  
Dusky above, below lateral line  
cadmium with pearly reflections.  
Royal purple stripe from middle  
of nasals through upper part of  
iris, breaking into spots behind  
eye. Another stripe, similar,  
begins on premaxillary, crosses  
preorbital and lower iris ending  
in 3 blotches behind eye; another  
stripe across middle of maxillary  
ending as blotch on front angle

total head length; D. 13 or 14,  
 fifth ray  $5\frac{2}{3}$  to  $6\frac{1}{2}$ ; caudal  $7\frac{1}{5}$   
 to  $7\frac{1}{4}$ , well forked, lobes pointed;  
 caudal peduncle depressed,  
 least depth equals width or 4 in  
 eye; pectoral  $7\frac{2}{5}$  to  $8\frac{7}{8}$  in total  
 head length, rays 16; ventral  
<sup>in total body length</sup>  
 $18\frac{1}{2}$ , or  $1\frac{1}{2}$  in eye.

Brown, back and under  
 surfaces paler. Iris slate.  
 Caudal and filament deep  
 grayish, fins otherwise all pale.

Red Sea, Zanzibar, Natal,  
 East Indies, Philippines, China,  
 Formosa, Riu Kiu, Japan, New  
 South Wales, Melanesia, Micronesia,  
 Polynesia.



8089 and 18569. Malanipa Island,  
east of Zamboanga. September 8, 1909.  
Length 88 to 110 mm.

17468, 17469, 21969. Murcielago Bay,  
Mindanao Island. August 9, 1909.  
Length 97 to 102 mm.

1 example. Philippines. Length 107 mm.

23984 and 23985. Santa Cruz Island,  
Marinduque. April 24, 1908. Length 61 to  
68 mm.

19955 and 21573. Port Galera, Mindoro. October 27, 1909. Length 80 to 93 mm.

23320 to 23324. Simaluc Island,  
north of Tawi Tawi. September 22, 1909.  
Length 57 to 111 mm.

17975 and 17976. Simaluc Sibi Sibi  
Island. September 23, 1909. Length 105  
mm.

23407 to 23409. Singaan Island,  
between Jolo and Tawi Tawi. September 21,  
1909. Length 80 to 100 mm.

A. N. S. P., one example. Off  
Katal, in 40 fathoms. 1922.  
H. W. Bell Marley. Length 420 mm.  
A. N. S. P., one example. Bombay.  
Prof. F. Hallberg. 1925. Length  
470 mm.



on some specimens; inner edge of  
iris bronze, otherwise color of  
stripes across eye. First dorsal  
colored like back, first membrane  
darker red and growing dusky  
terminally. Second dorsal color of  
back but more clearly red. Anal  
scarlet, with dusky line at base  
of membranes. Caudal pale  
vermilion. Pectoral hyaline pink.  
Ventral scarlet to orange with  
narrow light edge at tip of first  
ray, spine dusky; dusky of spine  
continued as submarginal on  
first ray.

3 examples [D. 5143]. Jolo Light, S.  
50° W., 3.40 miles (6° 05' 50" N., 121° 02'  
15" E.), vicinity of Jolo. In 19 fathoms.  
February 15, 1908. Length 110 to 115 mm.  
Male with buccal ova.

Family Macrohamphosidae

1734

Body oblong or elevated. Head prolonged anteriorly to form long tube with short jaws at end. No teeth. Gill openings wide. Gills 4, slit behind fourth.

Pseudobranchiae large.

Branchiostegals 4. Branchiyls and pharyngeals mostly present, fourth superior branchial and first and fourth superior pharyngeals only wanting. Air bladder large. Vertebral about 24, anterior fused into one. No pyloric coeca. Intestinal canal short. Head and body all covered by small, rough scales, formed by scaly plate in epidermis, with hind border more or less toothed and with



1735

one or more keels on its surface; each scale connected by stalk with bony plate imbedded in cutis; besides trunk armoured with large bony plates, which stiff and immovable and partly hidden by scales; ventral part of armour reaching from isthmus to anus, broken only by groove for ventrals, produces sharp ventral keel; dorsal cuirass formed by two rows of bony plates, lower partly connected with transverse extensions of vertebrae. Dorsals 2, continuous or separated, or both connected by series of short isolated spines; first dorsal of 4 to 7 spines, with second very long and strong. Soft dorsal and anal moderate,

opposite. Caudal emarginate,  
median rays extended. Pectoral  
short, inserted more or less  
midway in body height.

Ventral small, abdominal,  
without spine, folding more  
or less completely in groove,  
with spine or 4 or 5 rays.

Small fishes of tropical  
and temperate seas. In my  
study of the members of this  
family I have largely been guided  
by Regan's valuable "A  
Synopsis of the Fishes of the  
Family Macrorhamphoidae" 1914.  
He admits four genera as noticed  
below.



# Analysis of Genera

a. Macrorhamphosinae, new subfamily.

First dorsal spine quite short.

b. Each side of back with 2 series of bony plates, 3 well developed plates in each, besides fourth much smaller.

c. Skin with small but distinct scales; dorsals separated by interspace or connected by series of short isolated spines; space <sup>enlarged</sup> from dorsal spine base to vent not or but little over  $\frac{1}{2}$  that from head to caudal. Macrorhamphosus.

c.<sup>2</sup> Skin rough; dorsals continuous basally; dorsal spines 7, last 5 nearly equidistant and gradually shorter posteriorly; adults with cluster of bristles at nape. Notopogon.

17333. Isabel, Basilan Island,  
south of Zamboanga. September 11, 1909.  
Length 114 mm.

1587 [D. 5136]. Jolo Light, S.  $37^{\circ}$  E.,  
0.70 mile ( $6^{\circ}04'20''$  N.,  $120^{\circ}59'20''$  E.),  
vicinity Jolo. In 22 fathoms. February  
14, 1908. Length 103 to 123 mm.

10 examples. [137]. Pale brownish red,  
below axial line bright bronzed,  
becoming pale on belly. Brown stripe  
through eye, across opercle, bordered  
by pale gray lines with lower  
breaking across opercle in purplish  
spots. Tubes of lateral line brown.  
Black blotch on caudal peduncle at  
caudal base. Orange shades on  
lower gill membrane and breast.  
Chin dusky. Dusky stripe on maxillary,  
continued as spot on lower cheek.  
Gray borders on eye become silvery



b.<sup>2</sup> Each side of back with 2 series of bony plates, each with 4 plates well developed; dorsals continuous at base, spines 7. Contriscops.

a.<sup>2</sup> Scolopacichthyinae new subfamily.  
First dorsal spine  $\frac{2}{3}$  long as second, which long as head, distance from head to caudal or depth of body. Scolopacichthys.

13742 and 13743. Batangas Market,  
Batangas Bay, Verde Island Passage.  
June 6, 1908. Length 58 to 68 mm.

5593 to 5595, 7946, 7947. Batangas  
Market. June 7, 1908. Length 102 to 127 mm.

[1119]. Capulaan Bay, Pagbilao Island,  
vicinity Marinduque Island. February  
24, 1909. Length 110 mm.

16649 and 16651. Galera Bay, Mindoro  
Island. June 9, 1908. Length 57 to 98  
mm. 3 examples.

9924. Inamucan Bay, Mindanao  
Island. August 8, 1909. Length 125 mm.

[1805]. Orange wash anteriorly. Pale  
stripe through lower eye from snout  
and somewhat similar one parallel  
through upper eye. Black band at  
caudal base. Tips of vertical fins  
more or less scarlet.



Genus Macrorhamphosus Lacépède

Macrorhamphosus Lacépède, Hist. nat. Poiss., vol. 5, p. 136, 1803. (Type Silurus cornutus Forskål = Balestes scolopax Linnaeus, monotypic.)

Centriscus (not Linnaeus) Cuvier, Règne Animal, vol. 2, p. 350, 1817. (Type Balestes scolopax Linnaeus.)

~~Macrorhamphosus Gill, Cat. Fishes, vol. 1, p. 147, 1859. (Type Balestes scolopax Linnaeus.)~~

Orthichthys Gill, Proc. Acad. nat. Sci. Philadelphia, vol. 14, p. 234, 1862. (Type Centriscus velitaris Pallas, monotypic.)

Body oblong, compressed, more or less graduated to slender and small caudal peduncle. Head very large, attenuated and with upper profile to dorsal fin more or less straight. Snout variably long and attenuated, more or less inclined upward <sup>from body axis</sup> in front. Eye variable, usually rather large. Mouth very small. Maxillary very small. No lateral line, sensory canals on head. Dorsal armour of each side of body formed of 2 series of bony plates, each series consisting of 3 well developed and fourth much smaller plate. No bristles behind occiput. Dorsal fins not continuous, separated by interspace or



Pectoral origin with small deep brown spot.

China, Formosa, <sup>Riu Kiu,</sup> Korea, Japan. I follow Günther in referring the nominal Chrysophrys muripes Richardson and Chrysophrys xanthopoda Richardson to the group D of Günther under Chrysophrys hatai, thus corresponding to the present species.

75435 U. S. N. M. Wakamura, Japan. Jordan and Snyder. Length 217 to 218 mm. 2 examples.

75436 U. S. N. M. Tokyo. Jordan and Snyder. Length 212 to 218 mm. 2 examples.

connected by series of 3 to 7 short isolated spines. Soft dorsal low, over posterior part of longer low anal. Caudal more or less truncated. Pectoral moderate, rays 13 to 15. Ventral small.

Pelagic and in rather deep water. Besides the species below two others, Macrorhynchus scolopax (Linnaeus) and Macrorhynchus gracilis (Lowe) in the Atlantic.



ridge. Scales with 15 basal radiating striae; 21 to 37 small, weak obsolete apical denticles, with 7 transverse series of basal elements; circuli very fine.

D. VI, 11, I or 12, I, fourth spine 2 to  $2\frac{1}{8}$  in head, first ray  $2\frac{1}{2}$  to  $2\frac{3}{5}$ ; A. III, 8, I, second spine  $2\frac{1}{2}$  to  $2\frac{1}{8}$ , first ray  $2\frac{1}{4}$  to  $2\frac{1}{2}$ ; caudal  $1\frac{1}{8}$  to  $1\frac{1}{5}$ , broadly emarginate, lobes pointed; least depth of caudal peduncle  $2\frac{7}{8}$  to  $3\frac{1}{8}$ ; ventral  $1\frac{1}{3}$  to  $1\frac{1}{2}$ ; pectoral  $2\frac{3}{4}$  to  $2\frac{7}{8}$  in combined head and body to caudal base.

Back brownish, sides and below white. Opercular border of gill edge and suprascapula often dark. Iris whitish. Fins brownish. Dorsals deeper or dusky terminally, also front anal and ventral membranes.

# Analysis of Species

a. macrorhamphus. Eye equals or greater than postocular part of head.

b. Depth 4 to  $6\frac{1}{2}$ ; elongated dorsal spine inserted little in advance of vent.

c. Elongated dorsal spine strong, serrated, laid back reaches caudal. sagifue.

c.<sup>2</sup> Elongated dorsal spine serrated or not, laid back nearly or quite reaches origin or hind end of soft dorsal. molleri.

c.<sup>3</sup> Elongated dorsal spine smooth or feebly serrated, laid back not reaching soft dorsal.

b.<sup>2</sup> Depth 3 to  $3\frac{1}{2}$ ; elongated dorsal spine inserted strong, serrated, japonicus.



Depth  $2\frac{1}{2}$  to  $2\frac{3}{5}$ ; head 3 to  $3\frac{1}{8}$ ,  
~~width~~ 2 to  $2\frac{1}{8}$ . Snout  $2\frac{3}{4}$  to 3 in  
 head; eye  $4\frac{2}{5}$  to 5,  $1\frac{3}{4}$  to  $1\frac{4}{5}$  in  
 snout,  $1\frac{1}{4}$  to  $1\frac{1}{3}$  in interorbital;  
 maxillary reaches  $\frac{1}{5}$  to  $\frac{1}{4}$  in eye,  
 expansion  $1\frac{2}{3}$  to 2 in eye, length  $2\frac{3}{4}$   
 to  $2\frac{4}{5}$  in head; 6 front canines in  
 each jaw, often more or less slightly  
 flattened, followed by row of 5 to 7  
 antero-lateral canines though widened  
 or broadened outer teeth and posteriorly  
 4 rows of upper molars and 2 lower;  
 interorbital  $3\frac{1}{3}$  to  $3\frac{3}{4}$ , convex. Gill  
 rakers 6 + 8, robust, lanceolate, length  
 $2\frac{1}{2}$  in gill filaments, which  $1\frac{1}{5}$  in eye.

Scales <sup>51 to</sup> 53 in lateral line to caudal  
 base and 8 or 9 more on latter; 7 above,  
 13 or 14 below, 26 to 29 predorsal  
 forward opposite front pupil eye,  
 6 or 7 rows across cheek to preopercle

reaches  $\frac{1}{2}$  to  $\frac{4}{5}$  of space between  
opercle and caudal. elevatus.

a. Orthichthys. Eye less than  
postorbital. velitaris.



Sparus hasta Bleeker, Nederland.

Ned. chr. Diek., vol. 4, 1873, p. 138

(China). <sup>m</sup> Asakura, Jap. Journ. Zool.

Trans. Abstracts, vol. 1, no. 5, March 31, 1927, p. 149 (Taihoku).

Chrysophrys marginata Günther, Cat.

Fishes Brit. Mus., vol. 1, 1859, p. 491

(name in text; no description). No locality.

Chrysophrys swinhonis Günther, Ann.

Mag. Nat. Hist., series 4, vol. 13, 1874, p.

155. Chefoo, China; Rep. Voy. Challenger,

vol. 1, 1880, p. 67 (Inland Sea; Yokohama).

Sparus swinhonis Jordan and Simpson,

Proc. U. S. Nat. Mus., vol. 41, 1912, p. 586,

fig. 11 (Kobe, Wakunoura, Tokyo).

Macrohamphosus sagifue Jordan  
and Starks

Macrohamphosus sagifue Jordan  
and Starks, Proc. U. S. Nat. Mus.,  
vol. 27, p. 69, fig. 2, 1902 (type  
locality, Misaki; Enoura, Suruga).

— Weber, Nederl. Tijds. Dierk.,  
ser. 2, vol. 11, p. 72, 1909 (Japan).

— Franz, Abhandl. Kon. Bayer.  
Akad. Wiss., vol. 4, Suppl. Band  
1, p. 20, pl. 3, fig. 9, 1910 (Sagami  
Bay, Kagoshima, Misaki, Araga  
Canal).

— Jordan, Tanaka, Vnyder,  
Journ. College Sci. Tokyo, vol. 33,  
p. 103, fig. 78, 1913 (reference).

{ Schmidt, Trans. Pac. Comm. Acad.  
Sci. U. S. S. R., vol. 2, p. 35, 1931  
(Tokyo).

{ — Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 13, p. 19,  
1914 (reference).



Depth  $2\frac{1}{4}$  to  $2\frac{2}{5}$ ; head  $2\frac{3}{4}$  to 3, width  $1\frac{4}{5}$  to  $2\frac{1}{5}$ . Snout  $1\frac{7}{8}$  to  $2\frac{2}{3}$  in head from snout tip; eye  $2\frac{7}{8}$  to 4,  $1\frac{1}{5}$  to  $2\frac{1}{5}$  in snout, greater than interorbital in young to 1 to  $1\frac{1}{3}$  with age; maxillary reaches opposite front nostril, length  $2\frac{1}{2}$  to  $2\frac{7}{8}$  in head from snout tip; teeth in broad villiform band in each jaw, then outer row of conic teeth anteriorly of which 4 as canines in each and last 4 of each side as large simple molars; interorbital  $3\frac{1}{8}$  to  $3\frac{1}{4}$ , broadly convex; preopercle edge entire. Gill rakers 5 + 6, short low tubercles.

Scales 43 or 44 in lateral line to caudal base and 1 or 2 more on latter; 5 or 6 above, 14 or 15 below, 8 or 9 predorsal; suprascapula entire. Scales with 13 or 14 basal radiating

Depth  $4\frac{1}{4}$ ; head 2 to  $2\frac{1}{4}$ . Snout  $1\frac{1}{2}$  in head; eye  $5\frac{1}{2}$  to 6,  $3\frac{1}{2}$  to 4 in snout; maxillary scarcely long as pupil; mouth small, toothless; slight ridge above eye and along upper lateral edge of snout, conspicuous near eye, growing lower anteriorly; another ridge from front eye edge straight forward, unites with upper ridge; preopercular ridge touches hind orbit edge, oblique in nearly straight line to lower edge of head below eye.

D. V - 12, second spine  $3\frac{1}{4}$  in fish without caudal, soft dorsal height  $5\frac{1}{2}$  in <sup>total</sup> head length; A. 18 or 19, height anteriorly  $6\frac{3}{4}$ ; caudal emarginate?; least depth of caudal peduncle 2 in eye; pectoral 3 in total head length; ventral  $6\frac{3}{4}$ .

Brown above, silvery below, pale red in life. Fins colorless. Length 115 mm.  
(Jordan and Starks.)  
Japan.



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Macrohamphosus mollerii Whitley

Macrohamphosus mollerii Whitley,  
Austral. Zoologist, vol. 6, pt. 2,  
p. 117, January 14, 1930 (type  
locality, Maroubra Beach near  
Sydney; seven miles off Twofold  
Bay, New South Wales).

? Centriscus brevispinis Kner and  
Steindachner, Sitzs. Ber. Akad. Wiss.  
Wien, math.-naturw. Kl., vol. 54, p.  
374, fig. 9, 1866 (type locality,  
Samoa).

Can 189

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Lethrinus choerorhynchus (Schneider)

Sparus choerorhynchus Schneider, Syst.  
Ichth. Bloch, 1801, p. 278. Japan.

Lethrinus choerorhynchus Valenciennes,  
Hist. Nat. Poiss., vol. 6, 1830, p. — (on

Schneider).  $\frac{1}{27}$  Jordan and Snyder,

Ann. Zool. Japon., vol. 3, 1901, p. 8

("Japan").  $\frac{1}{27}$  Jordan and Thompson,

Proc. U. S. Nat. Mus., vol. 41, 1912, p. 562

(copied Bleeker). — Izuka and Matsura,

Cat. Zool. Spec. Tokyo Mus., Vertebr., 1920, p. 149

(Tokyo market). ↓

Lethrinus haematopterus (not Schlegel)

Günther, Cat. Fishes Brit. Mus., vol. 1,

1859, p. 464 (Sea of Japan).

Lethrinus güntneri Bleeker, Nach. Verh.

Sci. Nat. Harlem, vol. 8, 1873, p. 153, pl. 2.

Kinsin (Nagasaki).  $\frac{1}{27}$  Jordan and Snyder,

Ann. Zool. Japon., vol. 3, 1901, p. 80

(Nagasaki).



Macrohamphorus brevispinisJordan and Seale, Bull. Bur.

Fisher, vol. 25, p. 212, 1905 (1906)

reference). — Weber, Nederl.Tijds. Dierk., ser. 2, vol. 11, p. 74  
(79), 1909 (reference).Centriscus gracilis (not Lowe)Günther, Journ. Mus. Godeffroy,  
vol. 15, p. 222, 1881 (Samoa). —Macleay, Proc. Linn. Soc. New South  
Wales, vol. 9, p. 42, January 1884(Port Jackson). — Pedley, Proc.  
Linn. Soc. New South Wales, vol. 9,  
p. 119, 1884 (Port Jackson). —Ogilby, Cat. Fish New South Wales,  
p. 42, 1886 (reference).

Japan, Micronesia. Schlegel's figure shows a deep bodied fish with the first anal ray about  $\frac{2}{3}$  base of the soft anal fin. Each scale on the back with a dark basal spot. Caudal as expanded with its hind edge shown only slightly concave. Richardson gives the length as 100 to 700 mm. His figure shows an example in agreement with Schlegel, except that the body is marked with 6 large dark blotch on the back and several alternating series of dark blotches on the sides.

A well marked species, well figured by Schlegel. Its deep body, low soft dorsal and anal and usual dark or dusky spots, one at base of each scale on back and upper sides of body serve to distinguish the species.



Macrorhamphosus gracilis Waite,  
Mem. Austral. Mus., vol. 4, pt. 1, p.  
61, pl. 7, fig. 2, December 23, 1899  
(Maroubra); Rec. Austral. Mus.,  
vol. 3, p. 19, 1900 (Lord Howe Island).

— Weber, Nederl. Tijds. Dierk.,  
ser. 2, vol. 11, p. 72, 1909 <sup>[not]</sup> (Mediterranean,  
Madeira, West Africa, Canaries, and  
South America] Lord Howe Island).

— Waite, Rec. Austral. Mus., vol.  
5, pt. 3, p. 196, March 11, 1914  
(reference). — McCulloch, Mem.  
Austral. Mus., vol. 5, pt. 1, p. 83,  
1929 (reference).

~~Macrorhamphosus velutinus (not Tafelberg)  
Günther, Mem. Bishop Mus., vol. 10,  
p. 118, 1928 (part).~~  
~~Macrorhamphosus japonicus (not Günther)  
Regan Ann. Mag.~~

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striae; 108 to 175 apical denticles, very small, with 20 to 28 transverse series of basal elements; circuli very fine.

D. X, 9, I, third spine  $2\frac{2}{5}$  to 3 in total head length; third ray  $2\frac{2}{3}$  to  $2\frac{3}{4}$ ; A. III, 8, I, third spine  $2\frac{2}{3}$  to 3, first ray  $2\frac{4}{5}$  to  $2\frac{7}{8}$ ; caudal  $1\frac{1}{4}$  to  $1\frac{1}{3}$ , moderately emarginate; less so with age; least depth of caudal peduncle  $2\frac{1}{4}$  to  $2\frac{3}{5}$ ; pectoral 1; ventral  $1\frac{1}{5}$  to  $1\frac{1}{4}$ .

Brown, little paler below. Each scale with slightly darker spot medially, so that longitudinal dark lines form. Iris yellowish, Fins dull brownish, without markings. Head little deeper brown on naked areas than on squamation.

East Indies, Philippines, China, Formosa,



Macrorhamphosus japonicus (not  
Günther) Regan, Ann. Mag. Nat.  
Hist., ser. 8, vol. 13, p. 19, 1914  
(part).

Macrorhamphosus velitaris (not  
Pallas) Regan, Ann. Mag. Nat. Hist.,  
ser. 8, vol. 13, p. 20, 1914 (part). —  
Fowler, Mem. Bishop Mus., vol.  
10, p. 118, 1928 (part).

Depth 2 to  $2\frac{1}{3}$ ; head  $2\frac{1}{2}$  in young to 3 or  $3\frac{1}{4}$ , profile sloping. Eye 3 in young to  $5\frac{1}{2}$  in head, 1 in young to  $2\frac{1}{2}$  in snout, 1 in young to 2 in interorbital; lips very thick and fleshy, especially with age; incisors oblique, 12 above, 8 below; molars small, biserial in both jaws; preorbital entirely conceals maxillary; eye 2 in young to  $1\frac{1}{2}$  in preorbital depth with age. Gill rakers 9 or 10 on lower branch of first arch.

Scales 60 to 68 in lateral line; 9 or 10 above, 18 below; 4 or 5 rows on cheek to preopercle ridge, flange naked. Tubes in lateral line bifurcate on body posteriorly and caudal peduncle.

D. XI, 12 or 13, fourth spine 2 to 3 in head; A. III, 11.

Silvery in young, more grayish with age. Five or 6 broad black vertical cross



Depth  $4\frac{4}{5}$ ; head 2. Snout  $1\frac{1}{2}$  in head, level with body axis; eye  $5\frac{7}{8}$ ,  $3\frac{7}{8}$  in snout, equals postorbital; maxillary very small; interorbital very low.

D. IV—9?, second spine  $4\frac{2}{5}$  in head, fin origin midway between caudal base and front eye edge, soft dorsal height equals eye; A. 18?, fin height 2 in eye; least depth of caudal peduncle  $1\frac{1}{2}$ ; ventral  $1\frac{1}{4}$ ; pectoral  $3\frac{1}{4}$  in head; caudal  $3\frac{1}{8}$ , little emarginate behind.

Dark above or until level with median body axis, below whitish or pale. Length 100 mm. (Waite.)

New South Wales, Lord Howe Island. The very immature ~~name~~ Centruscus brevispinis Kner may be synonymous in which case this name will supersede

Macrorhamphosus molleri Whitley.  
Kner's account and figure show:

depth  $3\frac{4}{5}$ ; head 2. Snout  $1\frac{4}{5}$   
in head; eye  $4\frac{1}{4}$ ,  $2\frac{1}{4}$  in snout,  
equals postocular; mouth  
small, terminally inferior; interorbital  
very low.

D. III (IV) - 10 (9), spinous fin  
height  $2\frac{4}{5}$  in head, soft dorsal  
height  $1\frac{1}{2}$  in eye; A. 18, height  
 $1\frac{4}{5}$ ; caudal peduncle very short;  
caudal  $3\frac{1}{4}$  in head, truncate;  
pectoral  $3\frac{1}{8}$ , rays 12?; ventral  
rays 2, long as eye.

Back dark gray, sides  
blue gray to silvery white.  
Fins clear. Length 22 mm.



Macrorhamphosus japonicus (Günther)

Centriscus japonicus Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 522,  
1861 (type locality: Japan, <sup>China</sup>

Macrorhamphosus japonicus Regan,  
Ann. Mag. Nat. Hist., ser. 8, vol. 13,  
p. 19, 1914 (<sup>types</sup> note). — Chu, Biol.  
Bull. St. John's Univ., no. 1, p. 100,  
January 1931 (reference).

Jordan and Snyder, Annot. Zool. Japon., vol. 3,  
p. 59, 1901 (Yokohama; Tango). — Jordan and  
Starks, Proc. U. S. Nat. Mus., vol. 26, p. 70,  
1903 (reference). — Weber, Nedert. Tijds.  
Dierk., ser. 2, vol. 11, p. 73 (79), 1909 (Japan;  
China?).

~~Macrorhamphosus gracilis White  
White, Mem. Austral. Mus., vol. 4,  
pt. 6, pl. 7, fig. 2, 1877 (Maroubra  
N.S.W.)~~





Macrorhynchus scolopax (Linnaeus)

Balestes scolopax Linnaeus, Syst. Nat.,  
ed. 10, pt. 1, p. 329, 1758 (type locality,

(not Linnaeus) —  
Centriscus scolopax, Bleeker, Nat.  
Tijds. Ned. Indië, vol. 21, p. 55,  
1860 (reference). — Steindachner  
and Döderlein, Denks. Akad.  
Wiss. Wien, math.-naturw. Kl., vol.  
49, pt. 1, p. 267, 1885 (Tokyo; Tango).

Suppl. <sup>vol.</sup> band No. 1, 1910, p. 47 (Yokohama;  
Aburatsubo).  $\frac{1}{2}$  Jordan and Thompson,  
Proc. U. S. Nat. Mus., vol. 41, 1912, p. 560  
(Nagasaki).  $\frac{1}{2}$  Jordan and Hubbs, Mem.  
Carnegie Mus., vol. 10, June 27, 1925, No. 2,  
p. 240 (Kagoshima Bay, Miyazu).  $\frac{1}{2}$   
Ishima, Jap. Journ. Zool., Trans. Abstracts,  
vol. 1, No. 5, March 31, 1927, p. 129, fig. 1  
(Tainan, Formosa).  $\frac{1}{2}$  Fowler, Mem.  
Bishop Mus., vol. 10, 1928, p. 216 (Elbow  
Island, Truk, Marianas, not New Guinea  
specimen).

Lethyrnus haematopterus Schlegel, Fauna  
japonica, Poiss., pts. 5-6, 1844, p. 74.  
South west coast of Japan.



Depth  $4\frac{1}{2}$  to 5. Eye subequal with postorbital. Second dorsal spine inserted before vent, smooth or feebly serrated,  $\frac{2}{11}$  to  $\frac{2}{9}$  of space from opercle to caudal base, when laid back not reaching soft dorsal. Distance of soft dorsal from caudal more than base of soft dorsal. Anal begins immediately behind vent, or behind vertical from fourth dorsal spine. Caudal emarginate. Back reddish or greenish, sides and belly silvery. Length 127 mm. (Günther; Regan.)

1755

Macrorhamphosus elevatus Waite

Macrorhamphosus scolopax var.  
elevatus Waite, Mem. Austral. Mus.,  
vol. 4, p. 59, pl. 7, fig. 1, 1899 (type  
locality, New South Wales [=  
Newcastle Bight, 28 to 40 fathoms]).  
— Fowler, Proc. Acad. Nat. Sci.  
Philadelphia, p. 440, 1921 (Victoria).

Centriscus scolopax var. elevatus  
Kershaw, Victoria Natural., vol. 23,  
pt. 6, p. 125, 1906.



53116 A.N.S.P. Delagou Bay, Portuguese  
East Africa. H.W. Bell Marley.  
Length 95 mm.

Macrorhamphosus elevatus McCulloch, Biol. Res. Endeavour,  
vol. 1, pt. 1, p. 23, fig. 8, 1911 20 miles  
off Babel Island; off east coast Flinders Island  
Disaster Bay; between Port Stephens and Sydney;  
22 to 68 fathoms).  
— Regan, Ann. Mag. Nat. Hist.,  
ser. 8, vol. 13, p. ~~18~~ 19, 1914  
(Tasmania).

— McCulloch, Mem. Queensland  
Mus., vol. 8, pt. 1, p. 62, pl. 40, fig. 1,  
text figs. 1 to 4, January 30, 1924  
(off Newcastle Bight; Tweed River  
Heads; Queensland; off Cape  
Moreton; off Eden; off Broughton  
Island; off Cape Three Points;  
Maroubra Bay; 25 to 75 fathoms).

— McCulloch and Whitley, Mem.  
Queensland Mus., vol. 8, pt. 2, p.  
136, July 27, 1925 (reference). —  
McCulloch, Mem. Austral. Mus., vol. 5, pt.  
1 p. 83, June 29, 1929 (reference).



4 transverse dark band. Pectoral with dark inferior basal blotch. Four dark bands transversely on ventrals.

Zanzibar, Portuguese East Africa, Philippines, China. This species, surely quite distinct from Lethrinus minatus, with which it is confused by Barnard, has an entirely different coloration on the head. The figure by Valenciennes accurately portrays the species, which appears to have been unknown to Bleeker and not definitely reported from the East Indies. The "Lebatores" collections contain a single small specimen, described above, which establishes the species in the Philippine fauna.

1 example. Pandan Island. March 24, 1909. Length 98 mm.

(not Linnaeus) 1757

Macrohamphorus scolopax, Johnston,  
Proc. Roy. Soc. Tasmania, p. 255,  
1884 (

→ Weber, Neder. Tijds. Dierk., ser. 2,  
vol. 11, p. 70 (79), 1909 (Tasmania).

— Waite, Rec. Canterbury Mus., vol.  
1, pt. , p. 171, 1911 (Bay of Plenty,  
66 to 94 fathoms); vol. 1, no. 4, p.  
318, December<sup>28</sup>, 1912 (reference).

~~Macleay, Proc. Linn. Soc. New South  
Wales, vol. 9, p. 42, 1884 (~~

— Kent, Great Barrier Reef, p.  
1893 (Queensland).

~~Silurus cornutus Forsk., Descript.  
Animal., p. 66, 1775 (type locality,  
Marselles~~



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Cmel<sup>29</sup> Lethrinus haematopterus Schlegel  
Lethrinus haematopterus Schlegel, Fauna  
Japonica, Poiss., pts. 5-6, 1844, pl. 38. ~~Ichth.~~  
~~west coast of Japan~~ Richardson,  
Voy. Sulphur, Fisher, 1846, p. 144, pl. 64,  
figs. 1-3 (China seas, Japan, Canton,  
Hong Kong); Ichth. China Japan, 1846, p.  
242 (Canton; Hong Kong). Bleeker,  
Verhandel. Batavia. Genootsch. (Japan),  
vol. 26, 1857, p. 91 (Nagasaki). Kner, Reise  
Novara, Fische, 1865, p. 80 (Manila). Bleeker,  
Nederl. Tijdschr. Dierk., vol.  
4, 1873, p. 323 (Amboina, Luzon, Kiusiu);  
Atlas Ichth. Ind. Néerland., vol. 8, 1876-77,  
p. 112, pl. (53) 331, fig. 4 (Amboina; Manila).  
Károli, Termész. Füzetek, Budapest,  
vol. 5, 1881, p. 157 (Yokohama). Jordan  
and Snyder, Annotat. Zool. Japon., vol. 3,  
1901, p. 80 (Liu Kiu; Kyusaku). Franz,  
Abhandl. Kon. Bayer. Akad. Wiss., vol. 4,

~~Macrorhamphus gallinago Ogilby~~

Macrorhamphus gallinago Ogilby,  
Proc. Roy. Soc. Queensland, vol. 21,  
p. 6, December 1907 (type locality,  
Queensland [= Tweed Heads]).

— Weber, Nederl. Tijds. Dierk., ser. 2,  
vol. 11, pp. 72, 79, 1909 (Queensland).

Macrorhamphus luncifer Ogilby,  
New Fishes Queensland Coast, p. 10, 1910  
(type locality, Queensland [= off Cape  
Moreton, 70 to 75 fathoms]).

Macrorhamphus robustus Ogilby,  
New Fishes Queensland Coast, p. 91,  
1910 (type locality, Queensland  
[= Moreton Bay]).



According to Valenciennes the color is pale green, with a white spot at the angle of each scale. Numerous white points on cheeks. Membranous edge of opercle red. Vertical fins greenish. Iris yellow. Length 175 mm.

Red Sea, Arabia, Mozambique, Madagascar, Ceylon, East Indies, Philippines, Formosa, China, Polynesia.

55628 U.S.N.M. Zolo. Dr. E. A. Mearns. Length 250 to 357 mm. 3 examples.

56067 U.S.N.M. Philippines.

Bureau of Fisheries (No. 4107). Length 260? mm.

deepest with age.

Depth  $2\frac{7}{8}$  to  $3\frac{7}{8}$ ; head  $2\frac{1}{8}$  to  $2\frac{1}{5}$ .  
Snout  $1\frac{1}{2}$  to  $1\frac{3}{5}$  in head from snout tip; eye  $4\frac{1}{2}$  to  $5\frac{1}{8}$ , 3 to  $3\frac{1}{4}$  in snout; maxillary  $2\frac{1}{8}$  to  $2\frac{1}{4}$  in eye; interorbital low; eye equals or slightly greater than postocular.

D. IV - 11 or 12, second spine 1 to  $1\frac{1}{2}$  in <sup>total</sup> head, second ray  $4\frac{1}{8}$  to  $4\frac{7}{8}$ ; A. 17 to 19, fin height  $6\frac{4}{5}$  to  $9\frac{3}{5}$ ; caudal  $3\frac{1}{5}$  to  $3\frac{2}{3}$ ; least depth of caudal peduncle  $8\frac{3}{5}$  to 10; pectoral  $2\frac{7}{8}$  to  $3\frac{2}{5}$ ; ventral  $6\frac{1}{5}$  to  $7\frac{1}{4}$ .

Brownish.



Macrorhamphosus velitaris (Pallas)

Centriscus velitaris Pallas, Spicileg.  
Zool., fasc. 7, p. 36, pl. 4, fig. 8,  
1770 (type locality, Amboina).

— Bonnaterre, Tabl. Ichth., p. 30, pl. 86,  
fig. 357, 1788 (Amboina). — Walbaum,  
Artedi Pisc., vol. 3, p. 603, 1792 (copied).

— Forster, Fauna Indica, p. 13, 1795  
(reference). — Schneider, Syst. Ichth.  
Bloch, p. 113, 1801 (Amboina).

— Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 524, 1861 (copied). —

de Vis, Proc. Roy. Soc. Queensland,  
vol. 3, p. , 1887 (Moreton Bay).

deeply emarginate; least depth of caudal peduncle  $3\frac{4}{5}$ ; pectoral  $1\frac{2}{5}$ ; ventral  $1\frac{3}{4}$ .

Back and head above brown, sides and below pale to whitish. About 8 irregular transverse dark narrow bands on body, more or less broken as 3 or 4 rows of spots or blotches, that above first third of pectoral and other just above and beyond depressed pectoral tip darkest and most conspicuous. Snout dark brown. Broad dark brown band transversely across lower cheek and second one also vertically on preopercle. Iris pale yellowish or whitish. Fins all pale with spines and rays of dorsals and anals each spotted slightly with darker and dark blotches ~~also~~ bases reflected on fins basally. Caudal with



Macrobrachium velitaris Weber,  
 Ned. Tijds. Dierk., ser. 2, vol. 11,  
 p. 74<sup>(17)</sup>, 1909 (reference). — Regan,  
 Ann. Mag. Nat. Hist., ser. 8, vol.  
 13, p. 20, 1914 (<sup>East Africa, Indian Ocean,</sup> China, Mediterranean).

— Fowler, Mem. Bishop Mus., vol.  
 10, p. 118, 1928 (compiled). — McCulloch, Mem. Austral. Mus., vol. 5,  
 pt. 1, p. 83, June 29, 1929 (reference).  
 — Weber and Beaufort, Fishes Indo Austral.  
 Archip., vol. 4, p. 16, fig. 7, 1922 (copied).

Centriscus <sup>u</sup>~~sumpit~~ Lacépède, Hist.  
 Nat. Poiss., vol. 2, p. 93 (on Pallas).

Centriscus - gracilis (not Lowe) Günther,  
 Cat. Fish. Brit. Mus., vol. 3, p. 521,  
 1861 (China Seas)

maxillary reaches  $\frac{7}{8}$  to eye, length 3 in head from snout tip; teeth uniserial, all rather slenderly conic; 4 front canines in each jaw besides 1 or 2 medio laterals each side of jaw; inner band of villiform teeth in each jaw; interorbital 4, level. Gill rakers 4 + 5, low tubercles,  $\frac{1}{2}$  of gill filaments which  $2\frac{3}{4}$  in eye.

Scales 43 in lateral line to caudal base and 6 more on latter; 5 above, 14 below, 9 predorsal forward opposite upper hind preopercle edge; caudal base scaly. Scales with 10 to 12 basal radiating striae; 52 to 55 fine apical denticles, with 6 transverse series of basal elements; circuli fine.

D. X, 9, I, third spine  $2\frac{1}{8}$  in total head length, third ray  $2\frac{3}{5}$ ; A. III, 8, I, third spine  $3\frac{1}{8}$ , first ray  $2\frac{3}{4}$ ; caudal  $1\frac{1}{4}$ ,



1762

Macrorhamphosus hawaiiensis Gilbert

Macrorhamphosus hawaiiensis Gilbert,  
Bull. U. S. Fish Comm., vol. 23, pt.  
2, p. 613, fig. 237, 1903 (1905)

(type locality, near Laysan Island,  
59 to 70 fathoms). —

Jordan and  
Seale, Bull. Bur. Fisher., vol. 25,  
p. 212, 1905 (1906) (reference). —

Weber, Nederl. Tijds. Dierk., ser.  
2, vol. 11, p. 74, 1909 (reference).

Macrorhamphosus velitaris (not  
Pallas) Fowler, Mem. Bishop Mus.,  
vol. 10, p. 118, 1928 (compiled i part).

Regan, Ann. Mag. Nat. Hist., ser. 8, vol.  
13, p. 20, 1914 (part).

Above olivaceous, below golden.  
Iris yellowish or ~~orange~~ rosy.  
First finlets or yellowish. Length  
120 mm. (Bleeker.)  
Formosa, River Kiu,  
Japan.



Depth  $4\frac{1}{3}$ ; head  $2\frac{1}{8}$ ; snout  $1\frac{3}{5}$   
 in head from snout tip; <sup>in line horizontally with body axis</sup> eye  
 $5\frac{3}{4}$ ,  $3\frac{2}{5}$  in snout; maxillary  
 small,  $1\frac{2}{3}$  in eye; interorbital  
 very low.

Top of head covered with rather  
 coarse scales, crests of which form  
 sharply marked ridges.

D. V (VI shown on figure) - 12,  
 second spine 2 in total head length,  
 base of second dorsal  $1\frac{1}{8}$  in  
 interdorsal space; A. 18, I, base  
 twice second dorsal base; least  
 depth of caudal peduncle  $1\frac{3}{5}$  in eye;  
 pectoral  $3\frac{1}{5}$  in head, rays 15;  
 ventral length  $1\frac{1}{8}$  in eye.

Dark slate on back and top  
 of head, otherwise bright silvery.

Hawaiian Islands.

U. S. N. M., No. 51618, near Laysan  
 Island. In 59 to 70 fathoms. Albatross  
Collection (D. 3940). Length 42 mm.  
 Type of Macrorhamphosus hawaiiensis.

Genus Notopogon Regan

Notopogon Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 13, pp. 14, 20, 1914. (Type Notopogon lilliei Regan.)

Body moderately to greatly elevated, dorsal profile more or less sinuous to angular. Head moderate. Snout variably long or moderate. Eye variable. Skin rough, without distinct scales. Two rows of large bony plates on each side of back, each with 3 large plates and smaller posteriorly. Adults with patch of bristles on back behind head. Dorsals continuous at base, first spine very short, third to seventh spines nearly



equidistant and gradually decrease backwards, soft fin with 14 to 16 rays and little higher anteriorly. Anal like soft dorsal, large or rays 17 to 19, usually more or less advanced. Caudal nearly truncate. Pectoral placed little below level of eye. Ventral small, postmedian.

This genus represents the extreme of the family in which the spinous dorsal has the second spine at the summit of a conspicuous prominence of the back. The presence of bristles at the front of the predorsal, behind the head, with age, is also striking. Notopogon schoteli (Weber) from the Western Atlantic between Bahia and Montevideo,

and Notopogon fernandezianus  
(Delfin) from Juan Fernandez,  
are the other species of the  
genus.



com<sub>129</sub> Sparus anglicus (Gilchrist and Thompson)  
Chrysophrys anglicus Gilchrist and Thompson,  
 Ann. South African Mus., vol. 6, 1908-11, p.  
 172. Durban, Natal; Ann. Durban Mus.,  
 vol. 1, p. 4, 1917, p. 360 (reference). + Von  
Bonde, Fishes Marine Surv. South Africa,  
 Special Rep. No. 1, 1923, p. 18.  
Pagrus anglicus Barnard, Ann. South  
 African Mus., vol. 21, pt. 2, 1927, p. 700  
 (Natal coast in 40 fathoms).

Profile very steep, snout almost vertical  
 and straight, nape sloping. Interorbital  
 prominent. Preorbital long as deep,  
 scarcely extending behind mouth angle,  
 concealing less of maxillary than in  
Sparus gibbiceps, its lower edge straighter.

Scales 65 to 67 in lateral line; 10 or  
 11 above, 23 to 25 below; 11 or 12 rows on  
 cheek, not extending forward under eye  
 but ending on line from hind eye edge

# Analysis of Species

a. Second dorsal spine with base at broad obtuse angle in profile of back, moderately elevated.

b. Eye  $2\frac{1}{2}$  in snout. lilice.

b. Eye 5 in snout. macrostomus.

a. Second dorsal spine with base at <sup>summit of</sup> narrow isosceles triangle in profile of back, greatly elevated.

c. Origin of second dorsal spine over vent. maculatus.

c. Origin of second dorsal spine behind soft dorsal fin.

Xenopus.



Can 179 Sparus gibbiceps (Cuvier)

Chrysophrys gibbiceps Cuvier, Hist. Nat. Poiss., vol. 6, 1830, p. 127, pl. 147. Cape of Good Hope.  $\frac{1}{m}$  Bleeker, Natuurk. Tijdschr. Nederl. Indië, vol. 21, 1860, p. (50, 52) 62 (Cape).  $\frac{1}{m}$  Castelnau, Mém. Poiss. Afrique Australe, 1861, p. 20 (Simon's Bay).  $\frac{1}{m}$  Kner, Reise Novara, Fische, 1865, p. 86 (Cape).  $\frac{1}{m}$  Canestrini, Arch. Zool. Anat. Hist. Nat. Genova, series 2, vol. 1, 1869, p. 154 (Australia).  $\frac{1}{m}$  Castelnau, Record London Internat. Exhib., 1873, pt. 7, no. 5, p. 9 (Victoria).  $\frac{1}{m}$  Gilchrist and Thompson, Marine Biology. Rep. South Africa, no. 2, 1914, p. 97, fig. (habits).  $\frac{1}{m}$  Gilchrist, Marine Biology. Rep. South Africa, no. 3, 1916, p. 5, fig. 2 (egg and larva).  $\frac{1}{m}$  Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, 1917, p. 36 (references).  $\frac{1}{m}$  Thompson, Marine Biology. Rep. South

Notopogon lilliei Regan

1768

Notopogon lilliei Regan, Ann. Mag.  
Nat. Hist., ser. 7, vol. 13, pp. 14, 20,  
January 1, 1914 (type locality, <sup>not given</sup> 60  
miles south of Cape Everard, Victoria;  
on McCulloch). [= New Zealand later];

— Fitch and Thompson, Ann.  
Durban Mus., vol. 1, no. 4, p. 307,  
1917 (reference). — Fowler, Proc.  
Acad. Nat. Sci. Philadelphia,  
vol. 77, p. 208, 1925 (batal coast,  
100 fathoms). — Whitton, Antail.

— Barnard, Ann. South Afric. Mus.,  
vol. 21, pt. 1, p. 277, June 1925 (batal).  
north-west from Cabo Mann,  
New South Wales).

Terra Nova Exped. Zool., vol. 1, no. 1, p. 15,  
pl. 12, fig. 5, June 27, 1914 (New Zealand).  
— McCulloch, Zool. Res. Endeavour, vol. 2, pt.  
3, p. 91, July 3, 1914 (60 miles south of Cape  
Everard, Victoria, 60 to 70 fathoms; off  
Storm Bay, Tasmania).



Notopogon lilliei Regan

1768

Notopogon lilliei Regan, Ann. Mag. Nat. Hist., ser. 5, vol. 13, pp. 14, 20, January 1, 1914 (type locality, <sup>not given</sup> 60 miles south of Cape Everard, Victoria; ~~on Mc Culloch~~ [= New Zealand later]); — Fitchrist and Thompson, Ann. Durban Mus., vol. 1, no. 4, p. 309, 1917 (reference). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 77, p. 208, 1925 (batal coast, 130 fathoms). — Whitley, Austral.

scales Zoologist, vol. 6, pt. 2, p. 118, January 14, 1930 (10 miles West-north-west from Gabo Island, New South Wales).

Terra Nova Exped. Zool., vol. 1, no. 1, p. 15, pl. 12, fig. 5, June 27, 1914 (New Zealand). — McCulloch, Zool. Res. Endeavour, vol. 2, pt. 3, p. 91, July 3, 1914 (60 miles south of Cape Everard, Victoria, 60 to 70 fathoms; off Storm Bay, Tasmania).

g. 'Pvib,' 10 series of cheek scales fronto-post, 27  
lamia - many 14, 11  
north-west fr



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com<sup>1</sup> Lethrinus genivittatus Valenciennes  
Lethrinus genivittatus Valenciennes, Hist.  
Nat. Poiss., vol. 6, 1830, p. 306. No locality  
(discovered by Peron: East Indies).  $\frac{1}{m}$

Steindachner, Verhandl. zool. botan. Gesell.  
Wien, vol. 16, 1866, p. 478 (Zanzibar).  $\frac{1}{m}$

Fowler, Proc. Acad. Nat. Sci. Philadelphia,  
1925, p. 241 (Delagou Bay).

Lethrinus genivittatus Valenciennes,  
Hist. Nat. Poiss., vol. 6, 1830, pl. 159.

Lethrinus geniguttatus Jouan, Mém.  
Soc. Sci. Nat. Cherbourg, ~~series~~ 2, vol. 3,  
1868, p. 261 (Hong Kong; specific name  
error).

Lethrinus miniatus (not Schneider) Barnard,  
Ann. South African Mus., vol. 21, pt. 2, 1927,  
p. 632 (part).

Depth  $3\frac{1}{8}$ ; head  $2\frac{2}{3}$ , width  $2\frac{1}{4}$ . Snout  
 $2\frac{1}{4}$  in head from snout tip; eye 3,  $1\frac{1}{3}$  in  
snout, greater than interorbital;

1769

— McCulloch, Mem. Austral. Mus.,  
vol. 5, pt. 1, p. 84, June 29, 1929  
(reference).

Centriscoops humerosus (not Richardson)  
Zool. Res. Endeavour, vol. 1, p. 24, pl. 5,  
text fig. 9, 1911 (60 miles south of Cape  
Everard, Victoria, 60 to 70 fathoms).



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Analysis of the species bottom 245

a.<sup>1</sup> Sparus. Front teeth in each jaw incisors.

b.<sup>1</sup> Incisors subequal, median pair not enlarged.

c.<sup>1</sup> Pectoral base pale.

d.<sup>1</sup> Five to 7 narrow vertical black bands.

d.<sup>2</sup> Silvery, with golden or brown longitudinal bands; often dark spot at beginning of lateral line; pectoral axil black. globiceps.

c.<sup>2</sup> Pectoral base dusky, black spot in axil; olive green, scales edged white. sarba.

b.<sup>2</sup> Median pair of incisors enlarged; young with 6 or 7 longitudinal narrow brownish bands, fading with age. australis.

a.<sup>2</sup> Front teeth in each jaw conic canines, <sup>sometimes</sup> wearing obtuse with age. durbanensis.

e.<sup>1</sup> Chrysoblephus. Dorsal spines moderate, none prolonged.

f.<sup>1</sup> Upper molars biserial.

Chrys<sup>13</sup>  
name only

Centrus humerosus ~~not at all~~  
~~McCulloch, Biol. Res. Endeavour,~~  
~~vol. 1, p. 24, pl. 5, text fig. 9,~~  
~~1911. Considered a new species~~  
~~by Gilchrist and Thompson, Ann.~~  
~~South African Mus., vol. 13, pt. 3,~~  
~~p. 55, 1914 (Durban).~~

Centrusops cristatus McCulloch,  
 Biol. Res. Endeavour, vol. 2, p.  
 93, July 3, 1914 (type locality,  
 New Zealand) [new name  
 inadvertently introduced,  
 equivalent to notopogon bilineatus  
Meyen]



19314. Pandanon Island. March  
24, 1909. Length 53 to 168 mm.  
48 examples

1 example. Philippines. Length 73 mm.

20493. Port Galera, Mindoro.

June 9, 1908. Length 143 mm.

Depth  $3\frac{1}{4}$ ; head  $2\frac{1}{5}$ , width  $4\frac{1}{8}$ .  
 Snout  $1\frac{3}{5}$  in head from snout tip,  
 bent upward with straight lower  
 profile; eye 5,  $3\frac{1}{8}$  in snout; mouth  
 very small; maxillary barely  $\frac{1}{3}$  of  
 pupil; interorbital  $5\frac{1}{3}$  in head,  
 slightly convex. Gill rakers  $6+13$ ,  
 short, slender.

Scales with 5 parallel horizontal  
 keels, median ends in point and  
 each 4 more similar, small marginal  
 points.

D. VI — 12, spinous fin inserted  
 midway between hind eye edge  
 and caudal base; second spine  
~~inserted~~ greatly enlarged, elongate  
 and with row of serrae along each  
 hind edge basally; soft dorsal  
 origin little nearer caudal base  
 than spinous dorsal origin, fourth



Dipterodon hexacanthus Lacépède, Hist. Nat. Poiss., vol. 4, 1803, pp. 166, 168; vol. 3, 1802, pl. 30, fig. 2. Great Equatorial Ocean.

Centropomus aureus Lacépède, Hist. Nat. Poiss., vol. 4, 1803, pp. 253, 273. Mauritius and Reunion.

Amia aurea Bleeker, Atlas Ichth. Ind. Néerl., vol. 7, 1873-76, p. 92, pl. (59) 337, fig. 1 (Celebes, Flores, Solor, Batjan, Buru, Amboina, Waigiu, Rawak). —

Apogon aureus Macleay, Proc. Linn. Soc. New South Wales, vol. 7, 1883, p. 236 (Port Moresby, New Guinea). — ~~Bass~~ Bass, ~~Proc. Linn. Soc. New South Wales~~, vol. 41, 1904, p. 190 (Kadakata). — Weber, Siboga Exped., vol. 4, 1913, p. 138 (West Ceram, Meyer and ~~Baker~~ Klunzinger). — Steindachner, Abhandl. Senckenberg. Naturf. Gesell., vol. 25, 1900, p. 416 (Ternate). — Borsieri,

1772  
ray  $4\frac{2}{5}$  in total head length;  
A. 20, third ray  $6\frac{1}{4}$ ; caudal  $3\frac{1}{3}$ ,  
emarginate; pectoral rays 14, fin  
 $2\frac{9}{10}$  in head; ventral  $1\frac{2}{5}$  in eye.

nearly uniform pale brown.



Amia fleurieu (Lacépède)

Astorhinchus fleurieu Lacépède, Hist. Nat. Poiss., vol. 4, 1803, pp. 23, 24; vol. 3, 1802, pl. 32, fig. 2. Great Equatorial Ocean [Indo Pacific].

Amia fleurieu Fowler, Copeia, no. 58, June 18, 1918, p. 63 (Philippines); Proc. Acad. Nat. Sci. Phila., 1927, p. 274 (Philippines).

{ Ogilby, Mem. Queensland Mus., vol. 5, 1916, p. 182 (Darnley Island). — }

1723

A. N. S. P., one example. Natal  
coast, in 130 fathoms. 1922.  
H. W. Bell Marley. Length 110 mm.



23766. River at Pasacao, Ragay Gulf, Luzon. March 9, 1909. Length 52 to 75 mm. 2 examples.

58 examples. San Pascual, Burias Island. March 8, 1909. Length 25 to 60 mm. Males with buccal eggs.

2 examples. Santiago Port, Pagapas Bay, Luzon. February 20, 1909. Length 57 mm.

10 examples. Ulugan Bay, near mouth of Baheli River, Palawan. December 28, 1908. Length 35 to 50 mm.

9 examples. Varadero Bay, Mindoro. July 24, 1908. Length 56 to 69 mm.

19997. West coast Palani Island, small river, off northern Luzon. November 18, 1908. Length 58 mm.

23124, 23129 to 23133. Sandakan Bay, Borneo. March 2, 1908. Length 46 to 83 mm. 47 examples.

1774

Notopogon macrosolen Barnard

Notopogon macrosolen Barnard,  
Ann. Mag. Nat. Hist., ser. 9, vol.  
15, p. 498, 1925 (type locality,  
Off Table Bay, 200 fathoms);  
Ann. South Afric. Mus., vol. 21,  
pt. 1, p. 279, pl. 11, fig. 3, June  
1925 (type).

Depth  $2\frac{3}{5}$ ; head  $2\frac{1}{6}$ . Snout  
 $1\frac{2}{5}$  in head; eye  $7\frac{1}{4}$ ,  $5\frac{1}{8}$  in snout;  
interorbital low. Dorsal profile  
evenly convex, with very slight  
concavity containing patch of very  
short inconspicuous bristles.

D. VII, 15, second spine  $2\frac{1}{4}$  in  
head, <sup>strong, serrated,</sup> first ray 4; A. 18, first  
ray  $5\frac{1}{5}$ ; caudal  $3\frac{1}{6}$ , truncate,  
at least ends of rays; least  
depth of caudal peduncle 7.



Sparus (Pagrus) spinifer Klunzinger, Fische  
Roth. Meer., 1884, p. 43.

Pagrus spinifer Valenciennes, Hist. nat. Poiss.,  
vol. 6, 1830, p. 156 (Red Sea; Pondicherry).  $\frac{1}{m}$

Rüppell, Neue Wirbelth. Fische, 1835, p. 114

(northern Red Sea).  $\frac{1}{m}$  Günther, Cat. Fishes

Brit. Mus., vol. 1, 1859, p. 472 (China).  $\frac{1}{m}$

Martens, Verhand. zool. bot. Gesell. Wien,

vol. 16, 1866, p. 378 (Mirsa Eli, Red Sea).

$\frac{1}{m}$  Klunzinger, Verhand. zool. bot. Gesell.

Wien, vol. 20, 1870, p. 761 (Koseir, Red Sea).

$\frac{1}{m}$  Day, Fishes of India, pt. 1, 1875, p. 138,

pl. 33, fig. 5; Supplement, 1888, p. 787; Fauna

Brit. India, vol. 2, 1889, p. 42, fig. 16.  $\frac{1}{m}$  Elera,

Cat. Fauna Filipinas, 1875, p. 483 (Cebu).  $\frac{1}{m}$

Regan, Journ. Bombay Nat. Hist. Soc., vol.

16, no. 2, 1905, p. 330 (Persian Gulf).  $\frac{1}{m}$

Steindachner, Denkschr. Akad. Wiss. Wien,

Math.-Naturw. Klasse, vol. 71, pt. 1, 1907, p. 135

(Geshin, South Arabia).  $\frac{1}{m}$  Zugmayer, Abhandl.

1774a  
pectoral 3; ventral  $1\frac{1}{5}$  in eye.

Very pale rose pink, with  
silvery lustre. Fins transparent,  
with 2 cross bands on caudal,  
2 on dorsal, 1 on anal rose pink.  
Length 280 mm. (Barnard.)

South Africa.



Notopogon natalensis (Gilchrist)

Macrorhamphosus natalensis Gilchrist,

Fisher. Marine Biol. Surv. South  
1921 (1922),

Africa, Rep. no. 2, Spec. Rep. 3, p. 5-7,

pl. 12, fig. 2 (type locality, off

Buffalo River and Natal coast,

150 to 180 fathoms). — Barnard,

Ann. South Afric. Mus., vol. 21,

pt. 1, p. 278, June 1925 (type).

K. Bayer. Abad. Wiss., Math.-physik.  
 Klasse, vol. 26, band 6, 1913, p. 11  
 (Mekran).  $\frac{1}{m}$  Pellegrin, Bull. Soc. Zool.  
 France, vol. 39, 1914, p. 227 (Hosi Bi,  
 Madagascar).  $\frac{1}{m}$  Gilchrist and Thompson,  
 Ann. Durban Mus., vol. 1, pt. 4, 1917, p.  
 363  <sup>$\frac{1}{m}$  Malpas, Ceylon Administrat. Rep., 1921, pp. E5-E8.  $\checkmark$</sup>  (references).  $\frac{1}{m}$  Fowler and Bean,  
 Proc. U. S. Nat. Mus., vol. 62, 1922, p. 40  
 (Takao).  $\frac{1}{m}$  Herre and Montalban, Philippine  
 Journ. Sci., vol. 33, no. 4, Aug. 1927, p. 428,  
 pl. 8, fig. 2 (Manila).  $\frac{1}{m}$  Bernard, Ann.  
 South Afr. Mus., vol. 21, pt. 2, 1927, p. 696  
 (Katal coast, Delagoa Bay, 74 fathoms).  
Chrysophrys spinifer Steindachner, Verhand.  
 bot. zool. Gesell. Wien, vol. 1, 1861, p. 179  
 (Kark in Red Sea; Mauritius).  $\frac{1}{m}$  Day,  
 Fishes of India, pt. 1, 1875, p. 138, pl. 33, fig. 5.  
Aryzops spinifera Jordan and Thompson,  
 Proc. U. S. Nat. Mus., vol. 41, 1912, p. 575  
 (name).



Depth  $2\frac{1}{5}$  to  $2\frac{2}{5}$ ; head  $2\frac{1}{3}$ , width  $3\frac{3}{4}$  to  $3\frac{7}{8}$ . Snout  $1\frac{4}{5}$  to  $1\frac{7}{8}$  in head; eye  $4\frac{1}{2}$  to  $4\frac{2}{3}$ ,  $2\frac{1}{2}$  to  $2\frac{3}{5}$  in snout, greatly exceeds interorbital; mouth width  $2\frac{1}{3}$  to  $2\frac{3}{4}$  in eye; interorbital  $10\frac{1}{4}$  to  $10\frac{2}{3}$  in head, very low, level. Gill rakers  $7+16$ , low, short points,  $\frac{1}{3}$  of gill filaments, which 3 in eye.

Skin finely asperous, rough velvety to touch.

D. VII, 14, I or 15, I, second spine  $1\frac{2}{3}$  to 2 in head, third ray  $2\frac{1}{4}$  to  $2\frac{1}{2}$ ; A. 17, third ray  $3\frac{1}{5}$  to  $3\frac{4}{5}$ ; least depth of caudal peduncle  $5\frac{1}{2}$  to  $6\frac{1}{2}$ ; caudal  $1\frac{7}{8}$  to  $2\frac{1}{5}$ ; pectoral  $1\frac{9}{10}$  to  $2\frac{1}{8}$ , rays 15; ventral fin  $5\frac{1}{2}$  to  $6\frac{1}{5}$  in head; about 18 to 21 pairs, variably, of short bristles on predorsal behind occiput.

Depth  $2\frac{2}{5}$  to  $2\frac{4}{5}$ ; head  $2\frac{1}{3}$  to  $2\frac{3}{5}$ , width 2 to  $2\frac{1}{4}$ . Snout  $4\frac{1}{2}$  to  $5\frac{1}{4}$  in head from snout tip; eye  $2\frac{1}{2}$  to 3, greater than snout or interorbital; maxillary reaches  $\frac{3}{5}$  to  $\frac{2}{3}$  in eye, expansion  $2\frac{2}{5}$  to  $2\frac{1}{2}$  in eye, length  $1\frac{7}{8}$  to 2; teeth minute, villiform, in bands in jaws, on vomer and palatines, very short band on latter; interorbital  $4\frac{1}{8}$  to  $4\frac{1}{4}$ , nearly level; preopercle with ridge entire, edge with minute and rather sparse denticles. Gill rakers 5+16, lanceolate, also 2 small rudiments above, equals gill filaments which  $2\frac{1}{5}$  in eye.

Scales 23 or 24 in lateral line to caudal base and 4 or 5 more on latter, 2 or 3 above, 7 below, 4 predorsal; 2 or 3 rows of scales on cheek to preopercle ridge; Lateral line with tubes large,



Vinaceous buff to cream drab.  
Iris grayish. Fins paler than  
body to whitish.

- 1877, p. 8 (Red Sea). — Meyer, Ann.  
 Soc. Españ. Hist. Nat. Madrid, vol. 14,  
 1885, p. 12 (Cebu). — Boulenger, Proc.  
 Zool. Soc. London, 1887, p. 655 (Muscat).  
 — Elera, Cat. Fauna Filip., 1895, p. 470  
 (Cebu). — Jugmayer, Abhandl. Bayer.  
 Akad. Wiss., vol. 26, pt. 6, 1913, p. 10  
 (Oman). — Regan, Ann. Durban Mus.,  
 vol. 1, 1914-17, p. 168 (Durban). —  
Gilchrist and Thompson, Ann. Durban  
 Mus., vol. 1, 1917, p. 340 (compiled), ~~and Barnard,~~  
~~Ann. South Afr. Mus., vol. 21, 1927, p. 521 ( Natal coast, Mozambique)~~  
Apogon roseipinnis Cuvier, Hist. Nat. Poiss.,  
 vol. 3, 1829, p. 490. Trinquemale, Ceylon.  
 — Levy and Gaimard, Voy. Astrée, Zool.,  
 1834, p. 649, pl. 1, fig. 5 (Amboina).  
 — Peters, Arch. Naturgesch., 1855, p. 234  
 (Inhambane, Mozambique).  
Apogon <sup>annularis var.</sup> roseipinnis Günther, Cat. Fish.  
 Brit. Mus., vol. 1, 1859, p. 239.



A. N. S. P., two examples. Lat.  $29^{\circ}50'$   
 $29' S.$ , long.  $31^{\circ}16'30'' W.$ , off Natal.  
In 154 fathoms. Steamer Africana.  
H. W. Bell Marley. Length 170 mm.,  
both specimens.

Ann. Mus. Civ. Genova, vol. 41, 1904, p.  
 170 (Massana, Red Sea). — Pellegrin,  
 Bull. Mus. Hist. Nat. Paris, vol. 13, 1907,  
 p. 204 (Juliar Bay, Madagascar). —  
Beaufort, Bijdr. Dierk., Amsterdam,  
 1913, p. 114 (Saonek, Waigiu). — Weber,  
 Siboga Exped., vol. <sup>57, Fische</sup> 65, 1913, p. 228 (West  
 Ceram, Saleyer and Banda). — Barnard, Ann.  
 South Afr. Mus., vol. 21, 1927, p. 521 ( Natal coast, Mozambique).  
Apogon (Ummia) aureus Klunzinger,  
 Fisch. Roth. Meer., 1884, p. 22 (Koseir).  
Apogon annularis Rüppell, Atlas Reise  
 Nordl. Afrika, Fische, 1828, p. 48. For,  
 Red Sea; Neue Wirbelth. Fische, 1835,  
 p. 85. — Günther, Cat. Fish. Brit. Mus.,  
 vol. 1, 1859, p. 239 (Amboyna and Hong  
 Kong). — Playfair, Fishes of Zanzibar,  
 1866, p. 20 (Zanzibar). — Klunzinger,  
 Verh. zool. bot. Ges. Wien, vol. 20, 1870, p.  
 713 (Koseir, Red Sea). — Kossmann and  
Räuber, Zool. Ergebn. Reise. Roth. Meer,



Notopogon xenosoma Regan

Notopogon xenosoma Regan, Ann. Mag. Nat. Hist., ser. 8, vol. 13, pp. 14, 20, 1914 (type locality, Cape North, New Zealand, 70 fathoms); Terra Nova Exped. Zool., vol. 1, no. 1, p. 15, pl. 12, fig. 5, June 27, 1914 (type)

Depth from origin of second dorsal spine  $1\frac{2}{5}$ ; head  $2\frac{1}{10}$ . Snout  $1\frac{3}{4}$  in head; eye  $4\frac{1}{4}$ ,  $2\frac{2}{5}$  in snout, interorbital  $\frac{5}{7}$  of eye, flat.

Only 3 large plates in each dorso-lateral series; last of dorsal series bearing spine; pair of spines at posterior end of lower jaw; patch of scales behind dorsal hump modified into short bristles.

stout, second and third about equal.

Grayish, irregularly blotched darker. White below. Iris golden. Fins grayish or blackish. Ventral pale (ray) or dark. Reaches 1000 mm. (Barnard.)

South Africa, Natal.



D. VIII, 15, two fins subcontinuous,  
second spine rather slender,  
serrated, inserted over caudal  
peduncle, length  $1\frac{1}{3}$  in total  
head length; first branched  
dorsal ray  $2\frac{4}{8}$ ; A. 17, fourth  
ray  $3\frac{2}{5}$ ; caudal  $2\frac{1}{3}$ , slightly  
emarginate behind; least depth  
of caudal peduncle  $7\frac{2}{5}$ ; pectoral  
 $2\frac{1}{3}$ ; ventral  $5\frac{1}{2}$ .

Color not given. Length 80 mm.  
(Regan.)

New Zealand.

and hind preorbital angle.

Pinkish, silvery below, with darker vertical bands as in Sparus gibbiceps. Head dark red, with whitish patch before eyes. Red stripe at pectoral base. Reaches 470 mm. (Barnard.)

South Africa. According to Barnard more abundant on the Natal coast than Sparus gibbiceps and not ranging to the Cape. He says the scaling on the cheeks distinguishes the two species.



Genus Centriscope Gill

Centriscope Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 14, p. 234, 1862. (Type Centriscus humerosus Richardson, monotypic.)

Limiculina Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. , p. 425, 1907 (January 28, 1908). (Type Centriscus humerosus Richardson, orthotypic.)

Body strongly compressed, elevated, abruptly constricted behind vertical fins. Head moderate. Snout narrowly attenuated and well inclined ~~up~~ up from axis of body. Eye moderate. Mouth very small. Maxillary very short, small. Scales very small, each ending in spine posteriorly. Each side of back with 2 series of bony plates, with 4 well developed plates in each series. Dorsals continuous at base. Soft dorsal little shorter than

282a  
caudal and expanding in <sup>median</sup> body of caudal.  
Another from upper edge of orbit  
somewhat parallel to dorsal base,  
ending under dorsal axil or obscurely  
continued along <sup>top of</sup> caudal peduncle.

Caudal lobes purplish. Dorsal very  
pale hyaline sulphur, posterior rays  
slightly pinkish. Anal similar but  
paler. (1985.) Similar to preceding  
but caudal lobes not produced.

(1986.) Has stripe like two preceding.  
Dorsal vermilion, more or less mottled,  
front part more or less hyaline. Bases  
of caudal lobes purplish, become purplish  
crimson at tips and pale purplish in fork.



anal, over same. Caudal small <sup>1782</sup>  
Pectoral moderate, Ventral  
small.

Argyrops spinifer Fowler, Proc. Acad. Nat. Sci. Philadelphia, 1929 (1930), p. 609 (Hong Kong).

Pagrus longifilis Valenciennes, Hist. Nat. Poiss., vol. 6, Sep. 1839, p. 159. Trincomalee, Ceylon.

Argyrops longifilis Jordan and Richardson, Mem. Carnegie Mus., vol. 4, no. 4, August 28, 1909, p. 189 (Takao, Formosa).

Sparus longifilis Veno, Formosan Fisheries, 1911, p. 128.

Pagrus ruber Boulenger, Proc. Zool. Soc. London, 1887, p. 658. Muscat, East Arabia; 1889, p. 245 (Muscat).

Parargyrops edita Tanaka, Zool. Magazine Tokyo, vol. 28, no. 336, 1916, p. 141. Tokyo; Fishes of Japan, vol. 26, 1916, p. 425 (Tokyo market).

Argyrops edita Oshima, Jap. Journ. Zool., Trans. Abstracts, vol. 1, no. 5, March 31, 1927,



## Analysis of Species

- a.<sup>1</sup> Second dorsal spine inserted over anal fin; spinous dorsal base nearly vertical.      humerosus.
- a.<sup>2</sup> Second dorsal spine inserted over vent or anal origin; spinous dorsal base nearly horizontal.      sinuosus.

i.<sup>3</sup> Scales 51 to 60 in lateral line.

h.<sup>1</sup> Front yellowish; mauve above, paler below. megalommatus <sup>only</sup>

h.<sup>2</sup> Silvery, with golden bands along scale rows. haffara.

h.<sup>3</sup> Opercular border of gill edge and suprascapula often dark; dark spot at pectoral origin.

macrocephalus.

h.<sup>2</sup> Nine or more rows of scales above lateral line to spinous dorsal origin.

m.<sup>1</sup> Scales 55 to 65 in lateral line.

w.<sup>1</sup> Profile steep.

o.<sup>1</sup> Occiput and nape mostly gibbous, often greatly so.

p.<sup>1</sup> Cheek scales not extending forward below eye anglicus.

p.<sup>1</sup> Cheek scales extend forward below eye. gibbiceps.



1784

Centriscope humerosus (Richardson)

Centriscope humerosus Richardson,  
Voy. Erebus and Terror, Ichth., p. 11.  
10, 56, pl. 34, figs. 5-6, 1847 (type  
locality, South Australia).

— Günther, Cat. Fish. Brit. Mus.,  
vol. 3, p. 522, 1861 (type). —

Castelnau, Proc. Zool. Acclimat.

Soc. Victoria, vol. 1, p. 144, 1872

(reference). — Macleay, Proc. Linn. Soc.

New South Wales, vol. 6, pt. 1, p. 51, 1882  
(compiled).

Centriscope humerosus ~~Ch. H. White~~:

~~Philadelphius, vol. 1, p. 169, 1907 (reference)~~

~~White~~, Rec. Canterbury Mus., vol. 1, no. 1, p. 14,

1907 (reference); vol. , no. , p. 169,

111 (between Otago and Lyttelton

harbors, 18 to 53 fathoms). —

Fowler, Proc. Acad. Nat. Sci.

Philadelphius, vol. , p. 440, 1921

(Victoria). — Regan, Ann. Mag. Nat.

169  
vertical fins and ventrals blackish  
brown. Caudal variegated with lighter.  
Characteristic the ~~third~~ dorsal spine  
is subequally long as the last spine.



Hist., ser. 8, vol. 13, p. 21, 1914  
(type). — McCulloch, Zool. Res.  
Endeavour, vol. 2, p. 3, p. 90, July 3,  
1914 (Great Australian Bight,  
130 to 450 fathoms). — Waite,  
Rec. South Austral. Mus., vol. 2, no. 1,  
p. 50, fig. 76 (copied), April 23,  
1921 (reference). — McCulloch,  
Mem. Austral. Mus., vol. 5, pt. 1,  
p. 84, June 29, 1929 (reference).

515  
Cuv<sup>30</sup> Genus Gymnocranius Klunzinger  
Gymnocranius Klunzinger, Verhandl. zool.  
bot. Gesells. Wien, vol. 20, 1870, p. 764.

Type Dentex rivulatus (not Bennett)  
Rüppell = Dentex robinsoni Gilchrist and  
Thompson, monotypic.

Paradentex Bleeker, Atlas Ichth. Ind.  
Néerl., vol. 7, 1873-76, pl. 30, fig. 3. Type  
Dentex microdon Bleeker, monotypic.

Body deep, compressed. Eye large.  
Mouth small, jaws subequal. Teeth in  
several series, with outer row enlarged  
anteriorly, some canine like. Branchiostegals  
6. Scales large, about 50 in lateral line.  
Cheek with more than 3 rows of scales,  
preopercle flange naked. Head naked,  
except scaly opercle, subopercle, parietal  
region and lower cheek. Dorsal spines 10,  
rays 9 to 11, usually third to fifth spines  
largest. Anal spines 3, rays 10 or 11,



Macrobrachium humerosus Fowler,  
 Proc. Acad. Nat. Sci. Philadelphia,  
 vol. . . , p. 426, 1907 (Victoria specimen).  
 — Weber, Ned. Tijds. Dierk., ser. 2,  
 vol. 1, p. 76 (79), 1909 (South Australian  
 Ocean).

Centriscoops humerosus obliquus Waite,  
 Rec. Canterbury Mus., vol. . . , no. 1, p.  
 (170, pl. 26, 1911) <sup>type locality</sup> "photograph in  
 Dominion Mus. = New Zealand).

Centriscoops obliquus Regan, Ann.  
 Mag. Nat. Hist., ser. 8, vol. 13, p.  
 21, 1914 (reference).

length  $2\frac{1}{3}$  in head; 4 canines in front of each jaw, 10 or 11 conic teeth following each side of which last 3 smaller, lower, more blunt but not actually flat crowned; behind canines band of villiform teeth; interorbital low.

Scales 46 in lateral line to caudal base; 5 above, 17 below; predorsal extend forward not quite opposite eye.

D. X, 8 ( XI, 9, I on figure), third spine  $2\frac{3}{4}$  in total head length, third ray  $2\frac{1}{2}$ ; A. III, 8 ( III, 8, I on figure), third spine  $3\frac{1}{3}$ , first ray  $2\frac{3}{5}$ ; caudal  $1\frac{1}{3}$ , emarginate; least depth of caudal peduncle  $3\frac{1}{5}$ ; pectoral  $1\frac{1}{3}$ ; ventral  $1\frac{3}{5}$ .

Deep brown. Inside mouth reddish orange. Length 343 mm. (Richardson.)

Australia, Norfolk Island. Günther gives the color as olive, each scale of back and sides with black vertical streak at base. Head,



1786a

Depth  $2\frac{1}{4}$ ; head  $2\frac{1}{5}$ , width <sup>from snout tip</sup>  
 $5\frac{1}{5}$ . Snout  $1\frac{1}{2}$  in head; eye 7,  
 $4\frac{2}{5}$  in snout, equals interorbital;  
maxillary  $1\frac{3}{4}$  in eye; interorbital  
7, high, convex, with median  
keel little convex in profile over  
nostrils. Gill rakers 13, low,  
slender points, about  $\frac{1}{4}$  of gill  
filaments, which 2 in eye.

Skin rough, asperous to  
touch. On predorsal 3 rows  
longitudinally parallel of  
radiating striae, comprising 4  
plates in each row and  
penultimate of median row  
largest. Median interorbital  
keel with row of 5 radiate  
striate plates. Ventral or  
abdominal edge before ventrals  
5 slender or narrow keels or  
plates, each with small median  
spine. One also between ventrals

and vent.

D. VII, 10, second spine elongate, with row of small uneven denticles each side behind, spine  $1\frac{3}{4}$  in total head length, fourth ray  $5\frac{1}{5}$ ; A. 18, third ray  $5\frac{3}{5}$ ; caudal  $4\frac{1}{4}$ , subtruncate; least depth of caudal peduncle  $6\frac{3}{5}$ ; pectoral  $2\frac{7}{8}$ , rays 16; ventral  $8\frac{1}{2}$  in <sup>total</sup> head.

Brown, paler or more brassy below. Iris brown. Fins uniformly dull brown.

South Australia, Victoria, New South Wales, New Zealand.

A. S. N. M., no. 39694. New Zealand. Otago Museum.  
Length 134 mm.



Centriscoops sinuosus Regan

Centriscoops sinuosus Regan, Ann.  
Mag. Nat. Hist., ser. 8, vol. 13, p.  
210, 1914 (type locality, New  
Zealand).

Depth  $2\frac{1}{4}$ <sup>to 3</sup>; head  $2\frac{1}{4}$ , upper  
profile sinuous, convex before  
eye and behind head; belly  
convex. Eye nearly 4 in snout,  
equals interorbital, less than  
postorbital or cheek depth;  
interorbital strongly convex, with  
median ridge.

Each dorso-lateral series with  
4 large plates.

D. VII, 15, fins subcontinuous,  
second spine strong, serrated,  
nearly  $\frac{1}{2}$  long as space from opercle

590

Bank, Algoa Bay, Natal, to 40 fathoms.  
Sargus natalensis Steindachner,

Verhandel. zool. botan. Gesell.  
Wien, vol. 11, 1861, p. 100. Port Natal.

Sargus nigrofasciatus Regan, Ann.

Natal Mus., vol. 1, 1905, p. 253, pl. 41.  
Sixteen miles north east Bird Island, Natal,  
in 40 fathoms. Clark, Sci. Res. Scotia,

Fishes, vol. 4, 1915, p. 396 (Cape Colony).—

Gilchrist and Thompson, Ann. Durban  
Mus., vol. 1, pt. 4, 1917, p. 359 (references).

Depth  $2\frac{1}{3}$  to  $2\frac{2}{3}$ ; head 3, profile  
sloping, convex, gibbous before eyes. Eye  
 $3\frac{1}{2}$  to  $4\frac{1}{2}$  in head;  $1\frac{1}{3}$  to  $1\frac{2}{3}$  in snout,  
 $1\frac{1}{3}$  to  $1\frac{1}{2}$  in interorbital, little greater  
than to about equal to preorbital depth;  
each jaw with 4 to 6 incisors, contiguous,  
even median ones not markedly larger  
than others; 4 or 5 rows of molars  
above, 2 or 3 below, inner row always



to caudal, inserted over vent or  
anal origin; A. 17 or 18; caudal  
truncate; pectoral long as head  
without snout.

Brownish above, golden  
below. Length 135 mm. (Regan.)

New Zealand.

Can<sup>129</sup> Sparus globiceps (Cuvier)

Chrysophrys globiceps Cuvier, Hist. Nat. Poiss., vol. 6, 1831, p. 100. Cape of Good Hope.

$\frac{1}{m}$  Pappe, Synopsis Edible Fishes Cape, 1853, p. 18 (Cape).  $\frac{1}{m}$  Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 21, 1860, p. (50, 53) 62 (Cape).  $\frac{1}{m}$  Castelnau, Mém.

Poiss. Afrique Australe, 1861, p. 23 (Cape; Kalk Bay).  $\frac{1}{m}$  Schultze, Abhand. Deutsch.

Seefisch. Ver. Berlin, vol. 9, 1907, p. 9, pl. 2 (after Bloch).  $\frac{1}{m}$  Regan, Marine Biology.

Rep. South Africa, no. 2, 1914, p. 100 (habits).

+  $\frac{1}{m}$  Gilchrist, Marine Biology. Rep. South Africa, no. 3, 1916, p. 4, fig. 1 (egg and larva).

$\frac{1}{m}$  Von Bonde, Fishes Marine Surv. South Africa, Special Rep., no. 1, 1923, p. 19.

$\frac{1}{m}$  Sparus globiceps Barnard, Ann. South African Mus., vol. 21, pt. 2, 1927, p. 65, fig.

23a (head) (coast South and West Africa,

Saldanha Bay, Table Bay, False Bay, Agulhas



1789

Genus Scolopacichthys Regan

Scolopacichthys Regan, Ann. Mag.  
Nat. Hist., ser. 8, vol. 13, p. 21,  
1914. (Type Centriscus armatus  
Sauvage, monotypic.)

First dorsal spine  $\frac{2}{3}$  long as  
second, which long as head.

D. XI, 13, third spine 2 in head,  
~~first ray~~ 3 <sup>1</sup>/<sub>10</sub>; A. III, 10, second and  
 third spines subequal, 3 <sup>1</sup>/<sub>4</sub>, first ray  
 3 <sup>2</sup>/<sub>3</sub>; caudal 1 <sup>1</sup>/<sub>10</sub>, deeply emarginate;  
 least depth of caudal peduncle;  
 ventral 1 <sup>3</sup>/<sub>5</sub>; pectoral 3 <sup>1</sup>/<sub>3</sub> in combined  
 head and body to caudal base.

Silvery, with iridescent sheen.  
 Iris yellowish brown. Fins flesh  
 color. (Rüppell; Klunzinger.)

Red Sea, Arabia, Madagascar, Zanzibar.  
 As contended by Klunzinger, Day's  
 figure of Chrysophrys haffara does  
 not represent this species. It has  
 more numerous scales on the cheek  
 and above the lateral line, also a  
 more even convex frontal profile.



1790

Scolopacichthys armatus (Lauvage)

Centriscus armatus Lauvage, Arch.  
Zool. Expér. <sup>Generale,</sup> vol. 8, p. 36, 1879 (type  
locality, St. Paul Island).

Scolopacichthys armatus Regan, Ann.  
Mag. Nat., ser. 8, vol. 13, p. 21, 1914  
(reference).

Body compressed; very deep, depth <sup>at dorsal origin</sup>  
equals space between opercle and  
caudal base, ~~at dorsal~~. Upper profile  
rounded over opercle and inclined  
well before eye, continues with line  
forming snout; hind body profile  
equally well inclined. Head equals  
space between opercle and caudal  
base. Snout more than  $2\frac{1}{2}$  times eye;  
orbit large, edges smooth; mouth  
very small, oblique; nostrils large;  
interorbital with distinct keel,  
continued from crest before dorsal  
origin; vertical preopercle edge

or less ill defined stripes. Side of head with number shades; blue stripe from eye to front nostril; bluish under eye carried downward across front of cheek to mouth corner as slaty stripe; similar stripe across preorbital parallel. Vertical fins olive green, reddish terminally on membranes. Caudal with obscure reddish bars irregular. Pectoral hyaline straw, first or uppermost ray blue. Ventral olive, front edge bluish.

5552. Cataingan. April 19, 1908.

Length 265 mm.



inclined, weakly toothed.

D. begins midway between opercle and caudal, spines V, last 3 feeble and short, second strong or long as space separating opercle and caudal base, compressed, striated and strongly denticulated on hind edge; first spines very short, less than second spine height. Length 27 mm without caudal. (Sauvage.)

St. Paul's Island.

1791

Family Centriscidae

Body elongate, extremely compressed, with sharp ventral edge; greater part transparent, contains dorsal and ventral exoskeletal unflexible cuirass. Trunk ends posteriorly in long, strong spine, with or without movable spine at end. Head extended into long tube, with small terminal mouth toothless. Gills 4, complete, pectinate. Pseudobranchiae large. Dorsal cuirass of two alternating rows of 5 bony plates, each connected by suture; lower or lateral row traversed by lateral line, connected with vertebral column; behind fourth plates of upper row, and wedged between fifth plates an unpaired plate covering base of



terminating strong spine. Ventral  
cuirass row of 13 to 15 exoskeletal  
plates. Front 5 or 6 vertebrae  
elongated, transverse extensions of  
second to fourth or fifth connected  
with dermal plates. Below strong  
terminal spine 2 dorsal fins, 1  
spinous dorsal close below and  
soft one sloping downward;  
axis of short, movable tail  
deflected to obtuse angle from  
trunk, ends in short caudal  
and preceded by short anal.  
Pectoral median in body depth,  
well behind head. Ventral  
abdominal, more or less rudimentary,  
with spine and 4 soft simple rays.

Peculiar small fishes of  
shallow waters in the tropical  
Indo Pacific. They have the  
curious habit of usually swimming  
vertically, with the head downward  
in the water.

## Analysis of Genera

a.<sup>1</sup> Dorsal curass ending posteriorly  
in long, entire, unjointed spine.  
Centruscus.

a.<sup>2</sup> Dorsal curass ends posteriorly  
in distinct, movably-articulated  
spine (counted first of dorsal  
spines). Aeolisicus.



30, 1905, p. 84 (Baie deulong, Tonkin);  
 vol. 39, 1914, p. 229 (Fort Dauphin, Madagascar).  
Chrysophris haffara Rüppell, Neue  
Wirbelth., Fische, 1835, pp. 111, 120, pl. 29,  
 fig. 1 (Red Sea).  
Sparus (Chrysophris) haffara Klunzinger,  
Fische Roth. Meer., 1884, p. 44.

Depth  $2\frac{2}{3}$ ; head  $3\frac{1}{2}$ . Snout  $2\frac{1}{3}$  in head, upper profile very convex; eye  $3\frac{2}{3}$ ,  $1\frac{2}{3}$  in snout, equals interorbital; maxillary reaches  $\frac{1}{3}$  in eye, length  $2\frac{2}{5}$  in head; canines conic, blunt with age; 5 or 6 rows of upper molars, 3 below, last of middle row enlarged with age; interorbital low; preopercle edge entire; preorbital deep as or little deeper than eye.

Scales 60 in lateral line, 6 above, 14 below, 3 rows on cheeks to preopercle ridge and flange naked.

1794

Genus Centrus Linnaeus

Centrus Linnaeus, Syst. nat., ed. 10, pt. 1, p. 336, 1758. (Type Centrus scutatus Linnaeus, monotypic.)

Amphisilen Klein, Neuer Schauplatz, vol. 1, p. 280, 1775. (Type Centrus scutatus Linnaeus, monotypic.)

(Inadmissible.)

Amphisile Cuvier, Règne Animal, vol. 2, p. 350, 1817. (Type Centrus scutatus Linnaeus, monotypic.)

Acentrarchus Gill, Proc. Acad. Nat. Sci. Philadelphia, vol. 14, p. 234, 1862. (Type Centrus scutatus Linnaeus, orthotypic.)

~~Elipicus Gordon and Staples, Proc. U. S. Nat. Mus., vol. 26, p. 76, 1902. (Type Amphisile strigata Günther, monotypic.)~~

Amphisyle Peters, Archiv Naturges., 1855, p. 258. (Type Centrus scutatus Linnaeus.)



Body elongate, greatly compressed, thin, furnished with broad, bony dorsal cuirass, which composed of parts of skeleton. Dorsal cuirass with only one unpaired plate behind fourth plates of upper row and wedged in between fifth plates of row; ends in long strong spine, to which no separate dorsal spine joined. Axis of tail not in line with axis of trunk.

~~Gills 4. Pseudobranchiae present.~~

Interorbital space convex or with groove continued to crown of head, which striated and <sup>moderately</sup> crenulated. Gill opening <sup>wide</sup>.

Gills 4. Pseudobranchiae present.

Branchiostegals 3 or 4. Air bladder large. No pyloric coeca. No scales. Dorsal fins 2, far postmedian.

9779. Siasi market. February 17, 1908.  
Length 156 mm.

17830 [142], 17834. Simulac Island,  
Tataan. February 19, 1908. Length 190 to 195 mm.

4707. D. 5113. Sombroso Island, S.  $7^{\circ}$   
W., 2.50 miles ( $13^{\circ} 51' 30''$  N.,  $120^{\circ} 50' 30''$  E.),  
Luzon. January 16, 1908. Length 238 mm.

7475. Tataan, Simulac Island.  
February 20, 1908. Length 76 mm.

18716. Tictuan Island. September 8, 1907.  
Length 173 mm.

16393. Ulugan Bay, channel near Oyster  
Inlet. December 28, 1908. Length 190 mm.

20690, 20692. Ulugan Bay near mouth  
Baheli River. December 28, 1908. Length  
98 to 120 mm.

15437. Ulugan Bay near Rita Island.  
December 29, 1908. Length 133 mm.

5131. Usada Island, Pangasinan Group  
near Jolo. March 5, 1908. Length 270 mm.



1796

Ventral rudimentary, abdominal.

Indian and western Pacific  
Oceans.

22568. Malcochin Harbor. December 19, 1908. Length 88 mm.

12026. Nabutas Point, Samar Island. July 24, 1909. Length 237 mm.

11280. Pandanon Island. March 23, 1909. Length 150 mm.

300, 17235 to 17239, 19299 to 19301. Pandanon Island. March 24, 1909. Length 93 to 127 mm.

12057. Port Banglacan, Marinduque. February 23, 1909. Length 200 mm.

6331, 9026. Port Sumelo, Luzon. July 13, 1908. Length 180 to 222 mm.

20761. Port Matulvi. Length 96 mm.

6142. Puerto Princessa, Palawan. April 5, 1909. Length 168 mm.

12015, 20744. San Miguel Harbor, Ticao Island. April 21, 1908. Length 146 to 180 mm.

14176, 19687. Santa Cruz Island, Marinduque. April 24, 1908. Length 113 to 125 mm.



# Analysis of Species

a<sup>1</sup> Opercle ovate, nearly twice long as deep; sutures of lateral plates serrated.

b<sup>1</sup> Head 3 to  $3\frac{1}{4}$  in total; ventral rays 3, origin midway between front eye edge and last anal ray; pectoral origin midway between snout tip and base of first dorsal spine. scutatus.

b<sup>2</sup> Head  $2\frac{2}{3}$ ; ventral rays 4, origin midway between front eye edge and last anal ray; pectoral origin much nearer base of first dorsal spine than snout tip. capito.

a<sup>2</sup> Opercle tetragonal, long as or little longer than deep; sutures of lateral plates smooth. crustatus.

the loose diagnosis is inaccurate, as the dentition is said to have the incisors compressed, pointed and equidistant. Both the figures of Ostorhynchus fleuvien and Dipterodon hexacanthus agree in the dark transverse band across the caudal peduncle at or near the caudal base. The large teeth shown in the figure of the latter we think an error in engraving.



Centriscus scutatus Linnaeus

1798

Centriscus scutatus Linnaeus, Syst.  
Nat., ed. 10, pt. 1, p. 336, 1758 (type  
locality, ~~Amboyna~~ "in India  
orientali"); ed. 12, pt. 1, p. 415,  
1766. — Bloch, Naturges. Aush.  
Fische, vol. 1, p. 57, pl. 123, fig. 2,  
1785 (East Indies). — Bonnaterre,  
Tabl. Ichth., p. 30, pl. 21, fig. 68,  
1788 (East Indies; not Red Sea).  
— Gmelin, Syst. Nat. Linn., pt. 1,  
p. 1460, 1789 (India). — Walbaum,  
Artedi Pisc., vol. 3, p. 603, 1792  
(copied). — Forster, Fauna Indica,  
p. 13, 1795 (reference). — Lacépède,  
Hist. Nat. Poiss., vol. 2, p. 88, 1800  
("Méditerranée"); vol. 1, pl. 19, fig.  
2, 1798. — Schneider, Syst. Ichth.  
Bloch, p. 113, 1801 (India; not Red Sea).

Gill rakers 5+5, short spinescent  
tubercles, about  $\frac{2}{5}$  of gill filaments,  
which  $2\frac{1}{2}$  in eye.

Scales 41 to 44 in lateral line  
to caudal base and 1 or 2 more on  
latter; 3 or 4 above, 10 or 11 below,  
27 to 33 predorsal nearly forward  
to nostrils; 11 rows on cheeks, of  
which 5 on preopercle flange.

Suprascapula minutely ctenoid.  
Scales with 7 to 9 basal radiating  
striae; 67 to 150 apical denticles,  
small, short, with 1 or 2 transverse  
series of basal elements; circuli very  
fine.

D. X, 9, I, fourth spine  $2\frac{1}{10}$  to  $2\frac{1}{8}$   
in head, sixth ray  $1\frac{7}{8}$  to 2; A. III, 7, I,  
third spine  $2\frac{2}{3}$  to  $3\frac{1}{5}$ , first ray 2 to  
 $2\frac{1}{4}$ ; least depth of caudal peduncle  
 $2\frac{2}{5}$  to  $2\frac{1}{2}$ ; pectoral  $1\frac{1}{4}$  to  $1\frac{2}{5}$ ;



(1799)

— Gray, Cat. Fish Gronow, p. 138, 1854  
( "Muri Indico" ). — Bleeker, Verslag.  
Kon. Akad. Wet. Amsterdam, ser. 2,  
vol. 2, p. 298, 1868 (Waigiu; Réch.  
Faune Madagascar, Pollen et Van Dam,  
p. 75, 1875. — Weber, Zool. Forschungs.  
Austral. Semon, vol. 5, p. , 1895  
(Thursday Island). — Jordan and  
Seale, Bull. Bur. Fisher., vol. 26,  
p. 9, 1906 (1907) (Manila). — Weber,  
Siboga Exped., vol. 57, Fische, p. 99,  
1913 (Pigot Bay, Lombok, 20 meters;  
Banda, 56 meters; off South Timor,  
73 meters). — Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, p. 441, 1921  
(no data). — Weber and Beaufort,  
Fishes Indo Austral. Archip., vol.  
4, p. 22, <sup>8 and 11,</sup> figs. 1422 (Lias; Lombok; Celebes;  
Amboon; Banda; Aru; Timor).

Depth  $3\frac{1}{10}$  to  $3\frac{1}{4}$ ; head  $3\frac{1}{8}$  to  $3\frac{1}{4}$ , width  $1\frac{7}{8}$  to  $2\frac{1}{8}$ . Snout  $2\frac{3}{4}$  to  $3\frac{1}{4}$  in head; eye 3 to  $3\frac{3}{4}$ , greater than snout in young to  $1\frac{2}{5}$  with age, greater than interorbital in young to  $1\frac{1}{4}$  with age; maxillary reaches to or  $\frac{1}{8}$  in eye, expansion  $2\frac{1}{2}$  to  $3\frac{4}{5}$  in eye, length  $2\frac{3}{5}$  to  $2\frac{7}{8}$  in head; teeth fine, villiform bands of 4 or 5 irregular series anteriorly in jaws and outer enlarged row above, also 4 outer front curved upper canines and larger one flaring out each side anteriorly below; lower teeth with enlarged outer row only after canines where soon replacing villiform teeth; interorbital  $3\frac{1}{4}$  to 4, broadly and slightly convex; preopercle edge entire; opercle with small, flat spine.



— Ashima, Ann. Carnegie Mus., vol. 13,  
nos. 3-4, p. 261, pl. 13, fig. 2, April  
25, 1922 (Anpin, Formosa). —

McCulloch, and Whitley, Mem.

Queensland Mus., vol. 8, pt. 2, p.  
137, July 7, 1925 (reference). —

Borodin, Bull. Vanderbilt Marine  
Mus., vol. 1, art. 2, p. 47, 1930

(Manila Bay, Philippines). — Chevey,

Inst. Océan. Indo Chien, 19<sup>e</sup> note, p.  
18, August 25, 1932 (all Indo China).

Fowler, Mem. Bishop Mus., vol. 10, p. 118,  
1928 (compiled).

(— McCulloch, Mem. Austral. Mus., vol. 5, pt.  
1, p. 85, June 29, 1929 (reference).

Centriscus scutata Chu, Biol. Bull.

St. John's Univ., no. 1, p. 100, January 1931

(reference).

Pentapus trivittatus (not Bloch) Fowler,  
Mem. Bishop Mus., vol. 10, 1920, p. 217  
(Shortland Island).

Pentapodus trivittatus Fowler, Proc.  
Acad. Nat. Sci. Philadelphia, 1929 (1930),  
p. 642 (Shortland Island example).



Amphisile scutata Cuvier, Règne  
 Animal, ed. 1, vol. 2, p. 351, 1817  
 (reference). — Guérin, Iconogr.  
 Règne An. Poiss., p. —, pl. 45, fig. 3,  
 18 reference). — Richardson,  
 Ichth. China Jap., p. 247, 1846  
 (Canton; China Sea). — Bleeker,  
 Journ. Indian Arch., vol. 2, no. 9,  
 p. 633, 1848 (Sumbawa). — Jerdon,  
 Madras Journ. Lit. Sci. Art., p. 140,  
 1850. — Bleeker, Nat. Tijds. Ned.  
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 (Banda, heira); vol. 3, p. 235, 1852  
 (Amboina), p. 546 (Amboina); vol.  
 4, p. 93, 1853 (Amboina, p. 132  
 Ternate), p. 596<sup>597</sup> (Halmaheira);  
~~597~~ vol. 5, p. 321, 1853 (Amboina);  
 vol. 6, p. 51<sup>1854</sup> (Sindangole, Halmaheira,  
 p. 90 (Banda, heira), p. 458 (Amboina);  
 vol. 7, p. 228, 1854 (Manado, Celebes);

Heterognathodon xanthopleura Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 1, 1850

f. 101. Batavia. <sup>2</sup> Schultz, Cat. Mus. Godeffroy, no. 7, 1879, p. 40 (Vanua).

→ Pentapus xanthopleura Kner, Reise Novara,

Fische, 1865, p. 60 (Madras). <sup>1</sup> Steindachner,

Sitz. Ber. Akad. Wiss. Wien, Math.-

nat. Wiss. Klasse, vol. 60, pt. 1, 1870, p.

557 (Singapore). <sup>2</sup> Bleeker, Atlas Ichth.

Ind. Néerland., vol. 7, 1873-76, pl. (32) 310,

fig. 3.

Heterognathodon xanthopleurus Meyer,

An. Soc. Españ. Hist. Nat. Madrid, vol.

14, 1885, p. 15 (Macassar, Celebes).

Heterognathodon microdon Bleeker, Natuurk.

Tijdschr. Nederl. Indië, vol. 4, 1853, p. 464.

Batavia. <sup>1</sup> Günther, Cat. Fishes

Brit. Mus., vol. 1, 1857, p. 366 (Louisiades).

Pentapus microdon Bleeker, Atlas Ichth.

Ind. Néerland., vol. 7, 1873-76, pl. (20) 298,

fig. 1; vol. 8, 1876-77, p. 101 (Java; Ambon).



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 Batoe); vol. 9, p. 259, 1855 (Siloya);  
 vol. 12, p. 216, 1856 (hiaz), p. 230  
 (Batu); vol. 13, p. 372, 1857 (Xungi),  
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 (Goram); vol. 16, p. 30, 1858  
 (Amboina); vol. 18, p. 361, 1859  
 (Blinju, Banka); vol. 20, p. 198,  
 1859-60 (Priaman), p. <sup>447</sup>238 (Singapore);  
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 3, pp. 5, <sup>31</sup>, 1856 (Manado); vol. 1, no. 5,  
 p. 7, 1856 (Amboina); vol. 2, no. 7,  
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 Philippines; China). — Bleeker,  
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 Batoe); vol. 9, p. 259, 1855 (Siboga);  
 vol. 12, p. 216, 1856 (Nias), p. 230  
 (Batu); vol. 13, p. 372, 1857 (Xingji),  
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 (Goram); vol. 16, p. 30, 1858  
 (Amboina); vol. 18, p. 361, 1859  
 (Blinju, Banka); vol. 20, p. 198,  
 1859-60 (Priaman), p. <sup>447</sup>238 (Singapore);  
 Act. Soc. Sci. Ind. Néerl., vol. 1, no.  
 3, pp. 5, <sup>31</sup>1856 (Manado); vol. 1, no. 5,  
 p. 7, 1856 (Amboina); vol. 2, no. 7,  
 p. 6, 1857 (Amboina); vol. 3, no. 4,  
 p. 3, 1857-58 (Manado); vol. 3, no. 9,  
 p. 2, 1857-58 (Padang), p. 6 (Siboga);  
 vol. 8 (Sumatra), p. <sup>1859</sup>14 (Priaman).  
 → Günther, Cat. Fish. Brit. Mus.,  
 vol. 3, p. 525, 1861 (Singapore;  
 Philippines; China). — Bleeker,  
 Verslag. Akad. Wet. Amsterdam,





- 1907 (1908), p. 257 (Cuyo).  $\frac{1}{2}$  Fowler,  
 Copia, no. 58, June 18, 1918, p. 64  
 (Philippines).  $\frac{1}{2}$  Fowler and Bean,  
 Proc. U. S. Nat. Mus., vol. 62, 1922, p. 38  
 (Zamboanga).  $\frac{1}{2}$  Fowler, Proc. Acad. Nat.  
 Sci. Philadelphia, 1927, p. 283 (Philippines);  
 Mem. Bishop Mus., vol. 10, 1928, p. 218  
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Pentapus vittatus (not Bloch) Valenciennes,  
 Hist. Nat. Poiss., vol. 6, 1830, p. 260 (Moluccas).  
 $\frac{1}{2}$  Günther, Cat. Fishes Brit. Mus., vol. 1, 1859,  
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 Soc. Sci. Nat. Cherbourg, série 2, vol. 2, 1866,  
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 Füzetek, Budapest, vol. 5, 1881, p. 155  
 (Yangon).  $\frac{1}{2}$  Seale, Occas. Papers Bishop  
 Mus., vol. 4, no. 1, 1906, p. 46 (Shortland  
 Island).  $\frac{1}{2}$  Jordan and Seale, Bull. Bur.  
 Fisher., vol. 26, 1906 (1907), p. 23 (Philippines).



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 15, p. 265, 1863 (Ternate); Nederl.  
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 p. 218, 1865<sup>5</sup> (1866) note —  
Guichenot, Mém. Soc. Sci. Nat.  
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 (Madagascar). — Klunzinger, Verh.  
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 1880 (Philippines, 10 to 20 fathoms).  
 — Boulenger, Proc. Zool. Soc. London,  
 p. 664, 1887 (Muscat). — Day,  
 Fauna British India, Fishes, vol.  
 2, p. 358, fig. 117, 1889. — Duncker,

Pentapodus caninus (Cuvier)

Scolopsides caninus Cuvier, Hist. nat. Poiss.,  
vol. 5, 1830, p. 354, Boeck, New Guinea.

Scolopsis caninus Günther, Cat. Fishes  
Brit. Mus., vol. 1, 1859, p. 364 (copied).

Heterognathodon caninus Günther, Journ.  
Mus. Godeffroy, vols. 2-3, pts. 5-6, 1874,

p. 32 (Apamama, Gilbert Islands).  $\frac{1}{m}$

Schmeltz, Cat. Mus. Godeffroy, no. 5, 1877,

p. 12 (Bonham Islands).  $\frac{1}{m}$  Pöhl, Cat. Mus. Godeffroy,  
no. 9, 1884, p. 29 (Bonham Islands).

Pentapus caninus Steekeler, Atlas Ichth.

Ind. Néerland., vol. 8, 1876-77, p. 103

(Sumatra, Singapore, Bintang, Banks,

Biliton, Java, Bawean, Celebes, Sumbawa,

Timor, Ternate, Batjan, Amboina, New-

Guinea).  $\frac{1}{m}$  Macleay, Proc. Linn. Soc. New-

South Wales, vol. 7, 1882, p. 240 (New Guinea).

$\frac{1}{m}$  Evermann and Seale, Bull. Bur. Fisher.,

vol. 26, 1906 (1907), p. 84 (Bacon).  $\frac{1}{m}$  Jordan

and Richardson, Bull. Bur. Fisher., vol. 27,



Mitteil. Naturh. Mus. Hamburg,  
vol. 21, p. 167, 1903 (1904) (reference).

Amphisilen scutata Bleeker, Nederl.  
Tijds. Dierk., vol. 4, p. 133, 1873  
(1874) (China (error)).

Acentrachne scutata Bleeker, Nederl.  
Tijds. Dierk., vol. 2, p. 141, 1865  
(Burm).

Amphisile macrophthalmus  
Steindachner, Verh. zool. bot. Ges.  
Wien, vol. 10, p. 766, 1860 (type  
locality, Amboina).

→ Centruscus gracilis Bleeker, Nederl.  
Tijds. Dierk., vol. 4, p. 134, 1873  
(1874) (reference).

{ Acentrachne pachyacanthus Bleeker,  
Nederl. Tijds. Dierk., vol. 2, p. 274, 1865  
(on Amphisile scutatus Guérin).

13862 [1891] Cebu market. August  
31, 1909. Length 410 mm.



1805

Centrisca finschii Hilgendorf

Amphisila finschii Hilgendorf, Sitz.  
Ber. Naturforsch. Fr. Berlin, p.  
52, 1884 (type locality, New Britain).  
— Weber, Nederl. Tijds. Dierk., <sup>ser. 2,</sup> vol.  
11, p. 74, 1909 (note).

Macrohamphosus finschii Jordan  
and Seale, Bull. Bur. Fisher., vol.  
25, p. 212, 1905 (1906) (reference).

Centrisca scutatus (aft. Prinsep)  
Fowler, Mem. Bishop Mus., vol. 10,  
p. 118, 1928 (part).

11293. Alimango Bay, Burias Island.  
March 5, 1909. Length 202 mm.

~~19364.~~  
19363, Beach near Caiholo River mouth,  
Ulugan Bay, Palawan. December 29, 1908.  
Length 105 to 107 mm.

18479 to 18483, 21926. Bolalo Bay, Palawan.  
December 21, 1908. Length 86 to 128 mm.  
7 examples.

9412. Busin Harbor, Burias Island.  
April 23, 1908. Length 165 mm.

11050. Busin Harbor. March 8, 1909.  
Length 233 mm.

11709, 21938. Cagayan, Sulu Island.  
January 8, 1908. Length 98 to 192 mm.

12357, 13078. Candaraman Island,  
Balabac on January 14, 1909. Length 215 to 223 mm.

7628. Cataingan Bay, Masbate. April 17, 1908.  
Length 180 mm.

<sup>[5627]</sup>  
16861, 16863, Cataingan Bay. April 18, 1908.  
Length 110 to 178 mm.



1805a

Depth 6 to  $7\frac{2}{3}$ <sup>to caudal base</sup><sub>1</sub>; head 2 to  $2\frac{1}{2}$ , width  $9\frac{7}{8}$  to  $11\frac{1}{3}$ . Snout  $1\frac{1}{4}$  to  $1\frac{1}{3}$  in head; eye  $10\frac{4}{5}$  to  $12\frac{1}{8}$ ,  $8\frac{1}{2}$  to  $9\frac{4}{5}$  in snout, subequal with interorbital; postorbital  $5\frac{2}{5}$  to  $6\frac{3}{5}$  in head; interorbital low, convex, with median groove to crown, more prominent in young.

Sutures of lateral plates serrated. Bones of head above and bony cuirass of body all finely rugose-striate.

D. III, 10 or 11, first <sup>fin</sup> spine  $2\frac{2}{5}$  to 3 in head, spine of cuirass from opposite anal origin  $1\frac{1}{8}$  to  $1\frac{2}{5}$ , first dorsal ray  $3\frac{4}{5}$  to  $4\frac{1}{5}$ ; A. 11 or 12, third ray  $7\frac{1}{5}$  to  $9\frac{2}{5}$ ; caudal  $4\frac{1}{2}$  to 5; pectoral  $4\frac{1}{8}$  to  $4\frac{1}{3}$ , rays 10; ventral equals eye.

Brown, with silvery reflections. Brown streak along side of snout, widens and darkens as closer to

1805b  
eye. Iris light gray. Along back  
11 inclined silvery gray lines - or  
narrow bands transversely and  
each more or less curved, not  
extending laterally to ventral plates.  
Ventral surface of body, inclusive  
of region of ventral plate,  
~~isthmus~~ and basal region of  
vertical fins darker brown than  
back. Fins all pale or light  
brown.

Red Sea, Arabia, Madagascar,  
India, Ceylon, Singapore, East  
Indies, Philippines, Indo China,  
China, Formosa, Queensland,  
Melanesia.



The adults show 10 or 11 variable silvery gray more or less transverse or oblique lines on back. I cannot see that the "Ventral plates with 7-8 narrow silvery crossbars, which are very conspicuous in case the ventral plates are golden" as described by Weber and Beaufort. In my specimens the silvery lines are on the back.

Amia ceramensis Bleeker, Atlas  
Ichth. Ind. Néerl., vol. 7, 1875-76, p. 91  
(Sumatra, Singapore, Bawean, Buru,  
Ceram, Amboina); vol. 8, 1876-77, pl.  
(58) 336, fig. 1. — Seale, Philippine Journ.  
Sci., vol. 5, no. 4, 1910, p. 274 (Sandakan,  
Borneo).



One example. Balayan Bay, Taal.  
January 19, 1908. Length 104 mm.

4538. D. 5339. Canayan Island  
(N.), S. 59° E., 10 miles (lat. 11° 22' N.,  
long. 119° 12' E.), Palawan Passage.  
December 20, 1908. Length 130 mm.

5543. D. 5100. Corregidor Light,  
N. 16° E., 5.70 miles (lat. 14° 17' 15" N.,  
long. 120° 32' 40" E.), China Sea off  
Luzon. January 2, 1908. Length 90 mm.

~~2116 2118 D. 5137 11357 D. 1~~

22911. D. 5174. Jolo Light, 2.60  
miles (lat. 6° 3' 45" N., long. 120°  
57' E.), vicinity of Jolo. In 20  
fathoms. March 5, 1908. Length 138  
mm. to end of broken spine.

→ 6267. Manila market. June 12, 1908.

Length 188 mm.

1807

One example. Balayan Bay, Taal.  
January 19, 1908. Length 104 mm.

4538. D. 5339. Canayan Island  
(N.), S. 59° E., 10 miles (lat. 11° 22' N.,  
long. 119° 12' E.), Palawan Passage.  
December 20, 1908. Length 130 mm.

5543. D. 5100. Corregidor Light,  
N. 16° E., 5.70 miles (lat. 14° 17' 15" N.,  
long. 120° 32' 40" E.), China Sea off  
Luzon. January 2, 1908. Length 90 mm.

2116, 2118. D. 5137. [135.] Jolo  
Light, S. 61° E., 1.30 miles (lat. 6° 04' 25" N.,  
long. 120° 58' 30" E.), vicinity of  
Jolo. February 14, 1908. Length 165 to 179 mm.  
→ 6267. Manila market. June 12, 1908.  
Length 188 mm.



first 3 membranes terminally.  
Soft dorsal slightly grayish terminally,  
end of first membrane behind dorsal  
spine dusky or dark and <sup>about</sup> basal  
third of fin deep brown narrow  
longitudinal line. Anal paler but  
with similar dark brown subbasal  
line. Upper and lower caudal edges  
narrowly dusky. Many of our  
examples show a dark rounded  
spot, little smaller than pupil, above  
dark median lateral line at  
shoulder just below <sup>tubular</sup> lateral line.

Madagascar, Nicobars, East Indies,  
Philippines, Riu Kiu, Micronesia,  
Polynesia. This species bears a

21374. Murciayog Bay, Mindanao. <sup>1808</sup>  
August 21, 1909. Length 130 mm.

D. 5163. Observation Island, N.  
79° W., 6.70 miles (lat. 4° 59' 10" N.,  
long. 119° 51' E.), Sulu Archipelago,  
Tawi Tawi. February 24, 1908. Length  
80 to 110 mm.

One example. Philippines. Length  
85 mm.

D. 5179. Romblon Light, S. 56° E.,  
4.50 miles (lat. 12° 38' 15" N., long. 122°  
12' 30" E.), vicinity of Romblon.  
March 25, 1908. Length 73 to 85 mm.  
Three examples.



$2\frac{2}{5}$  to  $3\frac{1}{4}$ ; pectoral  $1\frac{2}{5}$  to  $1\frac{3}{5}$ ;  
ventral  $1\frac{4}{5}$  to  $1\frac{5}{6}$ .

General color pale brown, slightly paler on under surface of head and abdomen. Sides of head and body with silvery reflections, in some light lavender to violet. Iris whitish to pale yellowish to deep neutral gray. Usually a deep brown line on middle of side from head, <sup>nearly</sup> to caudal base, parallel with vertebral axis. At caudal base small blackish brown medial spot, greatly less than pupil and separated from dark lateral line. Fins all more or less whitish. Spinous dorsal dusky black, over

D. 5442. San Fernando Point Light,  
N. 37° E., 8.4 miles (lat. 16° 30' 36" N.,  
long. 120° 11' 06" E.), west coast of  
Luzon. May 11, 1909. Length 47 to 108 mm.  
Seventeen examples.

D. 5151. Sirun Island (C.), N. 58°  
E., 19.3 miles (lat. 5° 24' 40" N., long.  
120° 27' 15" E.), Sulu Archipelago,  
Tawi Tawi Group. February 18, 1908.  
Length 62 mm.

Two examples. South Channel to  
Manilla Bay. January 2, 1908.  
Length 82 to 110 mm.



Scales 22 or 23 in lateral line to caudal base and 4 or 5 more on latter, 2 above, 6 below, 5 or 6 predorsal, 2 rows on cheek. Tubes in lateral line large, well exposed, each with a small narrow basal scale. <sup>Scales with</sup> 11 to 13 basal radiating striae; 61 to 81 apical denticles, with 1 to 3 transverse series of basal elements; ~~moderately~~ <sup>moderately</sup> circuli, ~~fine~~.

D. VI - I, 9, I, third spine 2 to  $2\frac{1}{5}$  in total head length, first branched ray  $1\frac{2}{3}$  to 2; A. II, 8, I, second spine  $2\frac{2}{5}$  to  $3\frac{1}{2}$ , first branched ray 2 to  $2\frac{1}{8}$ ; caudal  $1\frac{1}{8}$  to  $1\frac{1}{5}$ , slightly emarginate behind; least depth of caudal peduncle

D. 5147. Tulade Island (F.), N.  
 3° E., 8.40 miles (lat.  $5^{\circ}41'40''$  N.,  
 long.  $120^{\circ}47'10''$  E.), Huli  
 Archipelago, vicinity of Siasi.  
 February 16, 1908. Length 67 to 80 mm.  
 Three examples.

22912. D. 5208. Tarutara  
 Island (N.), S.  $67^{\circ}30'$  E., 4.10  
 miles (lat.  $11^{\circ}45'53''$  N., long.  
 $124^{\circ}42'50''$  E.), off western Samar.  
 April 14, 1908. Length 78 mm.



Depth  $2\frac{5}{8}$  to  $3\frac{1}{8}$ ; head  $2\frac{1}{3}$  to  $2\frac{1}{2}$ , width  $2\frac{1}{5}$  to  $2\frac{1}{4}$ . Snout  $3\frac{7}{8}$  to 4 in head from snout tip; eye 3 to  $3\frac{1}{3}$ , greater than snout or interorbital; maxillary reaches  $\frac{2}{3}$  to  $\frac{3}{4}$  in eye or about opposite hind pupil edge, expansion 2 to  $2\frac{2}{3}$  in eye, length 2 to  $2\frac{1}{8}$  in head; bands of minute villiform teeth in jaws, on vomer and palatines; interorbital  $4\frac{7}{8}$  to 5, nearly level or only slightly convex; preopercle ridge entire, edge finely serrate with several little coarser below; preorbital entire. Gill rakers  $5+16$ , lanceolate, little longer than gill filaments or  $2\frac{1}{5}$  in eye.

Centruscapito Oshima

Centruscapito Oshima, Ann.

Carnegie Mus., vol. 13, nos. 3-4,  
p. 263, pl. 13, fig. 3, April 25, 1922  
(type locality, Yokohama, Formosa).

Depth  $6\frac{9}{10}$ ; head  $2\frac{2}{3}$ , width  
 $9\frac{3}{4}$ . Snout ~~from snout tip~~  $1\frac{1}{3}$   
in head from snout tip; eye  
 $10\frac{3}{4}$ ,  $6\frac{3}{4}$  in snout, equals  
interorbital; mouth terminal,  
single pore, with no teeth;  
interorbital  $10\frac{3}{4}$  in head, low.

Bony cuirass of trunk  
extends downwards to middle  
of sides, with shallow notch  
before and above pectoral;  
cuirass of 4 median pairs of  
narrow bone and 6 lateral



16094. Cataingan Bay. May 14, 1909.

Length 103 mm.

<sup>1586.</sup>

1587, 15886, 15887, Catbalogan, Samar.

April 14, 1908. Length 130 to 250 mm.

7116, 20574. Catbalogan. April 15, 1908.

Length 116 to 130 mm.

16335. Chase Head, Endeavor Strait, Palawan. December 2, 1908. Length 112 mm.

69, 70, 16306. Endeavor Strait, north west coast Palawan. December 23, 1908. Length 135 to 205 mm.

17303. Tigoro Point, Quinapundan Bay, Samar. July 28, 1909. Length 185 mm.

A429. Jolo market. March 6, 1908. Length 156 mm.

154, 9027, 18555, 18556. Lungao Point, Luzon. June 24, 1909. Length 137 to 240 mm. 5 examples.

21171. Malcochin Harbor, Linacapan Island. December 1908. Length 218 mm.

plates; sutures all deeply serrated except dorsal median sutures; lower part of sides covered with transparent tough covering supported by 9 ribs.

D. III, 10, soft fin height twice eye; A. 12, fin height about  $1\frac{1}{3}$  times eye; caudal  $4\frac{1}{2}$  in head; pectoral 4, rays 10; ventral rays 4, long as eye; caudal quadrate, end obtusely rounded.

Pale yellow. Rostral tube, space occupied by air bladder and membranous margin of lower parts transparent.

Fins whitish. Length 108 mm.  
(Alshina)

Formosa.



Can 179

Sparus haffara Forskål

Sparus haffara Forskål, descript. Animal,  
 1775, p. 33. Arabia.  $\frac{1}{m}$  Bonnaterre, Tabl.  
Ichth., 1788, p. 111 (Red Sea).  $\frac{1}{m}$  Gmelin,  
Syst. Nat. Linn., vol. 1, 1789, p. 1276  
 (Arabia).  $\frac{1}{m}$  Walbaum, Arted. Pisc., vol.  
 3, 1792, p. 293 (on Forskål).  $\frac{1}{m}$  Schneider,  
Syst. Ichth. Bloch, 1801, p. 279 (Red  
 Sea).  $\frac{1}{m}$  Lacépède, Hist. Nat. Poiss., vol.  
 4, 1802, pp. 31, 104 (Arabia).

Chrysophrys haffara Valenciennes, Hist.

Nat. Poiss., vol. 6, 1830, p. 108 (Red Sea).  
 $\frac{1}{m}$  Günther, Cat. Fishes Brit. Mus., vol. 1,  
 1859, p. 488 (compiled).  $\frac{1}{m}$  Klunzinger,  
Verhandel. zool. botan. Gesell. Wien, vol.  
 20, 1870, p. 759 (Koseir, Red Sea).  $\frac{1}{m}$  Day,  
Fishes of India, pt. 1, 1875, p. 142 (part).  $\frac{1}{m}$   
Sauvage, Hist. Nat. Madagascar, Poiss.,  
 1891, p. 194, pl. 25a, fig. 1 (Madagascar).  
 $\frac{1}{m}$  Pellegrin, Bull. Soc. Zool. France, vol.

Centriscus cristatus (de Vis)

1813

Amphisila

~~Centriscus~~ cristatus de Vis, Proc.

Linn. Soc. New South Wales, vol. 9,  
March 4

p. 872, 1885 (type locality, Kooka,  
Queensland).

Centriscus cristatus

~~Mc~~ Ogilby, Ann. Queensland Mus.,

no. 10, p. 41, 1911 (Hummocky Island;  
Boomerang Hill; Port Curtis; Cape  
Capricorn; Double Island Point;  
Hervey Bay; Platypus Bay; Bustard  
Bay). — Mc Culloch, Biol. Res.

Endeavour, vol. 3, pt. 3, p. , 1915

Cooktown. — Mc Culloch and Whitley,  
Mem. Queensland Mus., vol. 8, pt. 2,

p. 137, July 7, 1925 (reference). —

Mc Culloch, Mem. Austral. Mus., vol.

5, pt. 1, p. 85, June 29, 1929 (reference).



310  
ventral  $1\frac{1}{5}$  to  $1\frac{2}{5}$ ; caudal  $2\frac{4}{5}$  to  $3\frac{1}{10}$  in combined head and body to caudal base, deeply emarginate and lower lobe little shorter.

Back brown or drab brown, also most of sides, under surface whitish. Young with pale streaks from above eye along upper edge of predorsal and back far as soft dorsal at least; second broader pale or whitish streak from upper hind eye edge to bases of last dorsal rays; third white band from lower front preorbital edge to lower eye edge, front then continued from lower hind eye edge above pectoral base and back to middle of caudal base, widest of pale bands, in some specimens yellowish white in color. With age lowest broad band most

Depth  $4\frac{2}{3}$  to  $5\frac{1}{5}$ ; head  $2\frac{2}{3}$  to  $2\frac{3}{4}$ . Snout  $3\frac{1}{2}$  to  $3\frac{3}{4}$  in head; eye 2 to  $2\frac{2}{5}$  in postorbital, subequal with interorbital; interorbital strongly convex, longitudinally striated.

Lateral plates sculptured like head, <sup>sutures all smooth.</sup> Ventral plates 12, fourth largest, fifth to seventh subequal, others gradually smaller to last.

D. III, 12, upper rays  $2\frac{4}{5}$  in snout; A. 13 or 14, fin height  $1\frac{2}{5}$  in caudal; caudal feebly emarginate,  $1\frac{1}{4}$  in longest dorsal rays; pectoral rays 12; ventral rays 3, twice eye diameter.

Silvery. Deep red band from base of snout to eye, followed by golden spot on



Case 129

648

Sparus megalommatus (Klunzinger)  
Pagrus megalommatus Klunzinger, Verhandl.  
zool. botan. Gesell. Wien, vol. 20, 1870, p.  
762. Red Sea.

Sparus (Pagrus) megalommatus Klunzinger,  
Fische Roth. Meer., 1884, p. 43, pl. 4, fig. 3.

Depth  $2\frac{1}{6}$ ; head 3. Snout  $2\frac{1}{4}$  in head;  
eye  $3\frac{4}{5}$ ,  $1\frac{9}{10}$  in snout,  $1\frac{1}{2}$  in preorbital  
depth; maxillary reaches  $\frac{1}{3}$  in eye, length  
 $2\frac{1}{2}$  in head, greater than eye; 4 conic  
canines in front of each jaw; outer row  
of conic teeth in each jaw laterally,  
with inner row of fewer small obtuse  
teeth, their bases at least but little  
larger than those of jaw-teeth; interorbital  
low; preopercle edge uneven, entire.

Scales 57 (on figure) in lateral line,  
6 above, 14 below; cheeks with 7 rows  
of scales to preopercle ridge angle,  
flange naked; fins naked, except

temporal region. Continuous red or orange band; bisecting opercle, through pectoral base and along side to root of terminal spine, hind portion curved upward and sometimes supplemented by short parallel superior band. Abdominal ridge pale yellow, crossed by 8 to 10 oblique red bars directed downwards and backwards.

Length 300 mm.

(Ogilby.)

Queensland.



caudal base.

$\checkmark$  D. XII, 10, third spine  $2\frac{1}{3}$  in head, first ray  $4\frac{1}{8}$ ; A. III, 8, second and third spines subequal,  $2\frac{2}{3}$ , first ray 3; caudal 1, forked, lobes pointed; least depth of caudal peduncle 3; ventral  $1\frac{2}{3}$ ; pectoral  $2\frac{2}{3}$  in combined head and body to caudal base.

Front yellowish. Maud above, paler below. Fins uniform. Length 250 mm. (Klunzinger.)

Red Sea.

Genus Aēoliscus Jordan and  
Starks

Aēoliscus Jordan and Starks, Proc.  
U. S. Nat. Mus., vol. 26, p. 71, 1902.  
(Type Amphisila strigata  
Günther, monotypic.)

Dorsal cuirass ends posteriorly  
in distinct, movably articulated  
spine, counted as first of  
dorsal spines.

Distinguished from Centriscus  
chiefly by the above character,  
though in most other respects  
very similar.



Aeoliscus  
Centrus strigatus (Günther)

1817

Amphisile strigata Günther, Cat.  
Fish. Brit. Mus., vol. 3, p. 528, 1861  
(type locality, Java). — Bleeker,  
Ned. Tijds. Dierk., vol. 1, p. 240, 1863  
(Albi); vol. 2, p. 141, 1865 (Buru). —  
Lütken, Vidensk. Medd. Natur. Foren.  
Kjöbenhavn, ~~1865~~, p. 216, 1865 (1866)  
(East Indies). — Bleeker, Verslag Kon.  
Akad. Wet. Amsterdam, ser. 2, vol. 2,  
p. 298, 1868 (Waigiu). — Schmeltz,  
Cat. Mus. Godeffroy, no. 4, p. 21, 1869  
(Palau). — Castelnau, Viet. Offic.  
Rec. Philadelphia Exhib. (Res. Fish.  
Austral.), p. 33, 1875 (Cape York). —  
Bleeker, Arch. Néerl. Sci. Nat.  
Harlem, vol. 13, p. 37, 1878 (New  
Guinea). — Schmeltz, Cat. Mus.  
Godeffroy, no. 7, p. 51, 1879 (Pelew

olivaceous, lower half whitish.  
~~Three~~ dusky or slate bands on  
snout, lowest from front end of  
maxillae to lower eye edge, median  
from little above snout tip close  
below front nostril to front eye  
edge and upper band above  
nostrils to upper front eye edge.  
Iris golden brown. Gray or  
whitish band postocular and back  
little above axis of body at first  
and then to upper part of caudal  
peduncle. At caudal base at end of  
lateral line small, slate black,  
round spot, much less than pupil.  
Fins all pale brown.

India, Singapore, East Indies,  
Philippines, Tonkin, Queensland,  
Melanesia.



Islands). — Günther, Journ. Mus.  
 Godeffroy, vol. 7, pt. 15, p. 222, pl.  
 125-6, 1881. (Pelew Islands). —  
Macleay, Proc. Linn. Soc. New South  
 Wales, vol. 8, p. 271, 1883 (south east  
 New Guinea). — Pöhl, Cat. Mus.  
 Godeffroy, no. 9, p. 3, 1884 (Pelew  
 Islands). — Ogilby, Rec. Austral.  
 Mus., vol. 1, no. 7, p. 7, 1890-91  
 (Howla, Solomons). — Steindachner,  
 Abhandl. Senckenberg. Gesell., vol.  
 25, p. 438, 1900 (Putani River,  
 Halmahera; Ternate). — Bedot,  
 Rev. Suisse Zool., vol. 17, p. 169, 1909  
 (Amboina). — Pellegrin, Annua.  
 Mus. Zool. Reg. Univ. Napoli, new  
 ser., vol. 3, no. 27, p. 8, July 11, 1912  
 (San Jacinto, Philippines). —  
Johnston, Vic. Australian, vol. 22, pt. 4,  
 p. 100, 1917.





Aeoliscus strigatus Jordan and Starke,  
 (Proc. U. S. Nat. Mus., vol. 26, p. 71,  
 fig. 3, 1903 (Yueyama, Kiu Kiu).  
 — Jordan and Seale, Bull. Bur.  
 Fisher., vol. 25, p. 212, 1905 (1906),  
 (reference). — Evermann and Seale,  
 Bull. Bur. Fisher., vol. 26, p. 57,  
 1906 (1907) (Bacon). — Jordan and  
Richardson, Bull. Bur. Fisher.,  
 vol. 27, p. 245, 1907 (1908) (Cagayancillo).  
 — Beaufort, Bijdr. Dierk. Amsterdam,  
 vol. 19, p. 101, 1913 (Beo, Waigiu). —  
Jordan, Tanaka, Snyder, Journ.  
 College Sci. Tokyo, vol. 33, p. 106, 1913  
 (reference). — Weber, Siboga Exped.,  
 vol. 57, Fische, p. 98, 1913 (Biau,  
 Naleyer, Limbon, Laniou, Abi,  
 Burkai, Aru). — McCulloch and  
Whitley, Mem. Queensland Mus.,  
 vol. 8, pt. 2, p. 137, July 7, 1925 (reference).

Macleay, Proc. Linn. Soc. New South  
Wales, vol. 5, 1881, p. 385 (North and  
East coasts Australia; Cape Sidmouth).

Kent, Great Barrier Reef, 1893, p. 284 (Queensland).

Dontex filifer Castelnau, Victoria Office  
Rec. Philadelphia Exhibition (Res. Fishes  
Australia), 1875, p. 12. Queensland.

Macleay, Proc. Linn. Soc. New South  
Wales, vol. 5, 1881, p. 383 (Queensland).

Kent, Great Barrier Reef, 1893, p. 283 (Queensland).

Depth  $3\frac{1}{2}$ ; head  $3\frac{1}{2}$ , width  $1\frac{7}{8}$ .

Snout 3 in head; eye 4,  $1\frac{1}{4}$  in  
snout,  $1\frac{1}{5}$  in interorbital; maxillary  
reaches eye, expansion 3 in eye,  
length 3 in head; teeth in villiform  
bands in jaws, with pair of front  
canines in each, lower canines wider  
set and flare outward somewhat;  
interorbital  $2\frac{4}{5}$ , convex; preopercle  
edge membranous; opercle ends  
above in small flat spine. Gill  
rakers 4 + 5, short low blunt knobs,



— Whitley, Rec. Austral. Mus., vol.  
15, no. 5, p. 292, April 6, 1927 (Vila  
Harbor, New Hebrides; Clarence  
River, New South Wales; Innisfail,  
North Queensland); vol. 54, no. 2, p.  
92, 1929 (Antony Juva, Lord Howe  
Group). — McCulloch, Mem. Austral.  
Mus., vol. 5, pt. 1, p. 84, June 29, 1929  
(reference).

298

$\frac{1}{27}$  Evermann and Seale, Bull. Bur.  
Fishes., vol. 26, 1906 (1907), p. 84  
(Bulan and Jolo).  $\frac{1}{27}$  McCulloch,  
Biolog. Res. Endeavour, vol. 2, pt. 3,  
July 3, 1914, p. 108 (Rock Cod Shoal,  
Great Sandy Strait, Murray Island).  
Pentapodus retusus Whitley, Records  
Australian Mus., vol. 16, no. 4, March  
28, 1928, p. 216 (Hervey Bay district).  
Labrus? iris (not Valenciennes 1830)  
Richardson, Ann. Mag. Nat. Hist.  
London, vol. 11, 1843, p. 357. Off  
Bustard Bay, New Holland (Queensland).  
Pentapus paradiseus Günther, Cat.  
Fishes Brit. Mus., vol. 1, 1859, p. 383.  
Sumatra, Australia, Moreton Island,  
Lousiade Archipelago (figure not  
published).  $\frac{1}{27}$  Elleyn and Macleay,  
Proc. Linn. Soc. New South Wales, vol.  
1, 1876, p. 272 (off Cape Sidmouth). —



1821

Centrus strigatus Fowler, Proc. Acad.  
Nat. Sci. Philadelphia, p. 441, 1921  
(no locality). — Fowler and Bean,  
(Proc. U. S. Nat. Mus., vol. 62, p. 12,  
1922 (Takao, Formosa). — Fowler,  
Occas. Pap. Bishop Mus., vol. 8, no.  
7, p. 375, 1923 (Honolulu). —  
Duncker and Mohr, Mitteil. Naturh.  
Mus. Hamburg, vol. 41, p. 6, figs.  
1-3, 1925 (north east New Mecklenburg,  
Vol. , Admiralty Islands; south  
coast North Sommarania;  
Friedrich Wilhelm Harbor; and  
Dörperspitze, New Guinea; Pelew  
Islands). — Whitley, <sup>Rec.</sup> Austral. Mus.,  
vol. 15, no. 5, p. 292, 1927 (Vila Harbor,  
New Hebrides). — Fowler, Mem. Bishop  
Mus., vol. 10, p. 118, 1928 (Honolulu, 'Fate';  
Ascension Island; Pelew Islands); vol. 11,  
no. 5, p. 324, 1931 (reference).

Can 129 Pentapodus setosus (Valenciennes)  
Pentapus setosus Valenciennes, Hist.  
 Nat. Poiss., vol. 6, 1830, p. 270. Batavia.  
 $\frac{1}{m}$  Günther, Cat. Fishes Brit. Mus.,  
 vol. 1, 1859, p. 382 (compiled).  $\frac{1}{m}$  Kner,  
 Reise Novara, Fische, 1865, p. 60  
 (Madras and Singapore).  $\frac{1}{m}$   
Steindachner, Sitz. Ber. Akad. Wiss.  
 Wien, vol. 60, pt. 1, 1870, p. 559 (Singapore).  
 $\frac{1}{m}$  Bleeker, Atlas Ichth. Ind. Néerland.,  
 vol. 8, 1876-77, p. 101, pl. (46) 324, fig. 1  
 (Sumatra, Singapore, Bintang, Banka,  
 Biliton, Duzend Islands, Java, Celebes,  
 Batjan).  $\frac{1}{m}$  Macleay, Proc. Linn. Soc.  
 New South Wales, vol. 5, 1881, p. 385  
 (North coast and Port Jackson).  $\frac{1}{m}$   
Károli, Termesz. Füzetek, Budapest,  
 vol. 5, 1881, p. 154 (Singapore).  $\frac{1}{m}$   
Pellegrin, Bull. Soc. Zool. France, vol.  
 30, 1905, p. 84 (Baie de along, Tonkin).



1822

Amphisile scutata (not Linnaeus)  
Bleeker, Natuurk. Tijds. Ned. Indië,  
vol. 2, p. 245, 1851 (Banda). —  
Steindachner, Verh. zool. bot.  
Gesell. Wien, vol. , p. 765, 1860.

Amphisile komis Macleay, Proc.  
Linn. Soc. New South Wales, vol. 3,  
p. 166, pl. 19 b, 1879 (type locality,  
Komis, Maleggiok on Bahelstaub  
Island, Pelaw Group).

Centriscus komis Jordan and Seale,  
Bull. Bur. Fisher., vol. 25, p. 212,  
1905 (1906) (reference).

Head above and back light reddish brown, paler on sides. Cheeks, gill covers and abdomen silvery white. Indistinct blackish oblique band from nape of neck to point of opercle; second similar in front of dorsal, ending beneath lateral line in large rounded spot. Few indistinct clouded blackish spots along sides. Body scales indistinctly edged brownish and minutely dotted with brown. Dorsal, caudal and anal pale yellowish. Paired fins white, hind half of latter pale blackish, fin membranes minutely dotted with brown. Iris pale golden. Length 107 mm. (Cantor.)

Pinang.



1822a

Depth  $6\frac{1}{2}$  to  $7\frac{1}{5}$  to caudal base; head  $2\frac{1}{4}$  to  $2\frac{1}{2}$ , width 10 to  $10\frac{1}{5}$ . Snout  $1\frac{1}{3}$  to  $1\frac{2}{5}$  in head; eye  $11\frac{3}{5}$  to 12,  $7\frac{1}{2}$  to 8 in snout, greater than interorbital; interorbital low, convex, longitudinally striated, width  $1\frac{1}{4}$  to  $1\frac{1}{2}$  in eye; postocular  $6\frac{1}{8}$  to  $6\frac{1}{4}$  in head.

Sutures of dorsal plates finely serrate. On upper surface of head and cuirass all areas minutely rugose striate.

D. III, 9 or 10, movable terminal spine  $3\frac{1}{5}$  to  $3\frac{3}{4}$  in head, second spine  $4\frac{1}{2}$  to 5, second ray 4 to  $4\frac{4}{5}$ ; A. 11 or 12, fifth ray  $7\frac{1}{4}$  to  $8\frac{1}{5}$ ; caudal  $5\frac{3}{4}$  to  $5\frac{7}{8}$ ; pectoral  $4\frac{1}{2}$  to  $4\frac{2}{3}$ , rays 11 or 12; ventral  $8\frac{1}{4}$  to  $9\frac{3}{4}$  in head.

Pale brown, dark brown streak on side of snout, most distinct posteriorly and widens

1822.6  
little before eye, over postocular,  
along lower edges of dorsal  
shields to caudal basally. Iris  
gray or whitish, except as crossed  
by dark brown band. Fins all  
uniformly pale.

Arabia, Persian Gulf, East  
Indies, Philippines, Formosa,  
Japan, Riu Kiu, Queensland, New  
South Wales, Melanesia,  
Micronesia, Hawaii. Often the  
movable terminal spinous joint  
is broken or damaged in preserved  
materials, so that it is then  
confusing to distinguish the present  
species from Centruscus scutatus.  
However this may be done if the  
second spine is intact as it  
projects well <sup>posteriorly or</sup> beyond first  
dorsal rays. In Acolisus  
strigatus it is shorter than the  
front dorsal rays.



21922. Bolalo Bay, Palawan.  
December 21, 1908. Length 130 to  
148 mm. ~~Three~~<sup>Seven</sup> examples.

Three examples. Cagayan, Sulu  
Islands. January 8, 1909. Length  
127 to 130 mm.

One example. Cammahala Bay,  
Ragay Gulf, Luzon. March 11, 1909.  
Length 62 mm to end of broken  
spine.

22743. Capiunpugan,  
Mindanao. May 9, 1908. Length  
97 to 128 mm. Three examples.

20994. Cataringan Bay, Masbate.  
April 17, 1908. Length 122 mm.

Three examples. Cataringan Bay,  
Masbate. April 18, 1908. Length  
50 to 115 mm.

8259 to 8260. Catbalogan, Samar.  
April 14, 1908. Length 113 to 123? mm.  
Four examples.

Fourteen examples. Catbalogan,  
Samar. April 16, 1908. Length  
115 to 238 mm.

8562. Cebu market. April 5,  
1908. Length 94 mm.

One example. Guigulugan.  
April 3, 1908. Length 34 mm, caudal  
spine broken.

Three examples. Nabatas Point,  
Samar. July 24, 1909. Length 141 to  
149 mm.

20657. North end of Endeavour  
Strait, North west coast Palawan.  
December 22, 1908. Length 136 mm.

One example. Philippines. Length  
120 mm.



8/132 Elevated; preorbital width less than half of pupil and infraorbital rim very narrow; preopercle edge denticulate; opercular spines 2. Gill rakers 9 + 25, lanceolate, greatly longer than gill filaments.

20959. Port Matalvi, Luzon.  
Length 120 to 140 mm. Five  
examples.

Two examples. Port San Vicente.  
November 18, 1908. Length 110 to 135  
mm.

15764, 15765. Sacol Island.  
September 9, 1909. Length 123? to  
125 mm.

Two examples. Tara Island.  
December 15, 1908. Length 55 to 60 mm.  
10875. Varadero Bay, Mindoro.  
July 23, 1908. July 23, 1908. Eleven  
examples.

One examples. Limbe Strait, Celebes.  
November 10, 1909. Length 138 mm.

14401, 21526, 22638, 22736.  
Talissi Island. November 9, 1909.  
Length 128 to 140 mm. Six examples.



1826

Aeoliscus  
~~Centrus~~ punctulatus (Bianconi)

Amphisile punctulata Bianconi,  
Rendic. Acc. Sciz. Bologna,  
~~Spec. Zool. Mozambique~~, fasc. 10,  
p. 221, ~~fig.~~ pl. 1, fig. 2, (1854) (type  
locality, "Mozambique" <sup>1853-54</sup>).

— Gunther, Cat. Fish. Brit. Mus., vol.  
3, p. 527, 1861 (Red Sea). — Trimen,

— Lütken, Vid. Medd. Fören. Köbenhavn,  
1865 (1866), p. 216 (Zanzibar).

(Chatal).

Aeoliscus punctulatus Barnard,  
Ann. South Afric. Mus., vol. 21, pt. 1,  
p. 280, pl. 11, fig. 6, June 1925  
(East London, Durban, Delagoa Bay,  
Mozambique).

1826

Aeoliscus  
~~Centrus~~ punctulatus (Bianconi)

Amphisile punctulata Bianconi,  
Rendic. Acc. Sciz. Bologna,  
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p. 221, ~~fig.~~ pl. 1, fig. 2, (1854) (type  
locality, "Mozambique" <sup>1853-54</sup>).

Günther, Cat. Fish. Brit. Mus., vol.  
3, p. 527, 1861 (Red Sea). Trinmen,  
Trans. South Afric. Philos. Soc., vol. 4, pt. 2, p.  
53.  
Centrus punctulatus Regan, Ann.  
Durban Mus., vol. 2, p. 70, 1917  
( Natal ).

Aeoliscus punctulatus Barnard,  
Ann. South Afric. Mus., vol. 21, pt. 1,  
p. 280, pl. 11, fig. 6, June 1925  
(East London, Durban, Delagoa Bay,  
Mozambique).





represents the adult. The dark bar across the pectoral base is distinctive at all ages. The young also have a median pale predorsal line.



1827

? Centruscus scutatus (not Linnaeus)  
Forskål; Descript. Animal., pp. 17.  
1775 (Arabia; Lohaja).

Amphisyle brevispina Peters, Archiv  
Naturg., p. 259, 1855 (type locality,  
Inhambane, Mozambique).

Amphisile punctata Kner, Sitzb. Ber.  
Akad. Wiss. Wien, Math.-naturw.  
Kl., vol. 39, p. 534, fig. 2, 1860  
(type locality, Zanzibar).

distinct, especially on flanks. Iris yellowish brown. Dorsals, caudal and pectorals pale brown, last with narrow basal transverse dusky line or bar. Ventrals and anals pale yellowish white.

East Indies, Philippines, Micronesia, Melanesia, Polynesia. My small examples agree largely with Bleeker's figure of Pentapus bifasciatus on his plate (16) 294, though they differ in that the third pale band begins narrowly on the snout, continues along the lower eye edge with its lower edges all more or less bounded by dark color similar to that on the back. With age the line or band becomes very narrow on the head and either fades in preserved examples or is absent. Bleeker's Pentapus xanthopleura



Depth  $6\frac{1}{2}$  to  $6\frac{3}{4}$  measured to caudal base; head  $2\frac{1}{2}$  to  $2\frac{3}{4}$ , width  $9\frac{3}{4}$  to 10. Snout  $1\frac{1}{3}$  to  $1\frac{2}{5}$  in head from snout tip; eye 10 to 11,  $7\frac{1}{5}$  to  $7\frac{3}{5}$  in snout, greatly exceeds interorbital in young to subequal with age; maxillary 2 to  $2\frac{1}{5}$  in eye; interorbital 12 to  $12\frac{1}{2}$  in head from snout tip, moderately high, convex.

Body casque with 6 large plates, third and fourth subequal largest; ventral plates 5+7.

D. III, 10, first spine terminally posterior of casque, free section  $5\frac{1}{5}$  to  $5\frac{2}{3}$  in total head length, fin height  $4\frac{1}{2}$  to  $4\frac{3}{5}$ ; A. 11 to 12, fin height 6 to  $6\frac{2}{5}$ ; caudal  $4\frac{1}{2}$  to  $5\frac{1}{4}$ ; pectoral rays 10 or 11, fin 4 to  $4\frac{1}{3}$  in total head length; ventral  $6\frac{2}{5}$  to 8.

We do not accept Barnard's contention (Ann. South Afr. Mus., vol. 21, 1927, p. 521) in which he says: "Astorhinchus fleuryi Lacép. and Dipterodon hexacanthus Lacép. cannot be included in the synonymy of this species, as the descriptions of the dentition are not those of an Apogon at all."

Both descriptions and figures are truly ~~convincing~~ vague and crude, though seem to us unmistakably those of the present species. Of Astorhinchus fleuryi Lacépède says the snout, comprising the two bony jaws is well produced, resembling those of the scaroids, diodons, ovoides, tetradons, tortoisés, same as the beak of the parrotbeets. For Dipterodon which includes D. plumieri and D. notatus besides the genotype D. hexacanthus,



Pale translucent brownish. Dark or blackish brown band from lower terminal part of snout to eye then to pectoral and finally concurrent with lower profile to dorsal fin base. Iris silvery white. Small scattered blackish brown spots over most of body and on head along sides of snout and opercle. Fins pale.

Red Sea, Zanzibar, Mozambique, Natal, South Africa.

scales wide at caudal base, extends slightly along upper and lower basal edges of caudal. Fins all more or less pale, lower ones whitish. Anal with narrow inconspicuous subbasal longitudinal brown line. Spinous dorsal dusky gray, Ventral with front edge grayish.

Red Sea, Mozambique, Natal, Ceylon, India, East Indies, Philippines, China.

Quite uniform in coloration and abundant.



A. n. S. P., four examples. Natal.  
1931. H. W. Bell Marley. Length 128 to  
175 mm.

well exposed, each with small  
 crenulate basal scale. Muzzle,  
 including interorbital, maxillary and  
 suborbitals naked, <sup>scales with</sup> 7 to 18 basal radiating  
 striae; 44 to 148 apical denticles, with 1  
 to 6 transverse series of basal elements;  
~~moderate~~ circuli moderate.

D. VII - I, 9, I, third spine 2 to  $2\frac{1}{8}$  in  
 total head length, first ray  $1\frac{2}{5}$  to  $1\frac{3}{4}$ ;  
 A. II, 8, I, second spine  $2\frac{2}{3}$  to  $2\frac{3}{4}$ , first  
 ray  $1\frac{3}{5}$  to  $1\frac{2}{3}$ ; caudal  $1\frac{1}{8}$  to  $1\frac{1}{10}$ , slightly  
 emarginate behind, with rounded lobes;  
 least depth of caudal peduncle  $2\frac{2}{5}$  to 3;  
 pectoral  $1\frac{2}{5}$  to  $1\frac{1}{2}$ ; ventral  $1\frac{3}{5}$  to  $1\frac{2}{3}$ .

Back brown, below paler. to  
 whitish, with silvery to brassy tints on  
 opercles, lower side of head and  
 abdomen. Iris whitish or grayish.  
 Broad dusky brown vertical band, 4